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U.S. Bureau of Foreign and Domestic Commerce

Methods of handling... lumber in South America

Washington

1929

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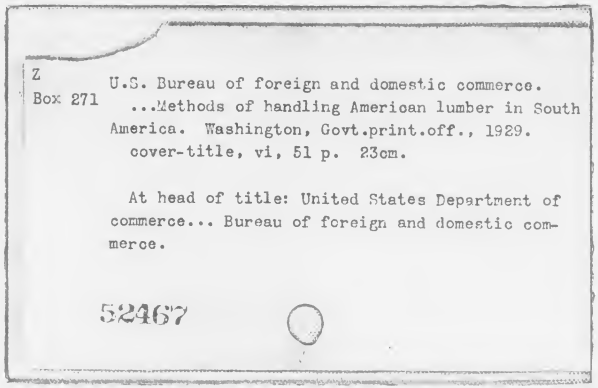

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UNITED STATES DEPARTMENT OF COMMERCE
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BUREAU OF FOREIGN AND DOMESTIC COMMERCE
WILLIAM L. COOPER, Director

METHODS OF HANDLING AMERICAN LUMBER IN SOUTH AMERICA

UNITED STATES
GOVERNMENT PRINTING OFFICE
WASHINGTON : 1929

LUMBER DIVISION

The lumber division of the Bureau of Foreign and Domestic Commerce is organized to give assistance to the trade in lumber and forest products. It is staffed by men with years of practical experience in the merchandising of lumber. Through the oversea representatives of the Departments of Commerce and State, it is in close touch with the world's markets. The division gives American exporters a detailed and comprehensive service of foreign market information and sales assistance and guidance. A domestic section was organized in November, 1929, to give special assistance to the domestic lumber trade.

NATIONAL COMMITTEE ON WOOD UTILIZATION

The National Committee on Wood Utilization of the Department of Commerce, established by direction of President Coolidge, comprises about 150 members, representing manufacturers, distributors, and consumers of lumber and wood products. Its object is to work for closer utilization of our country's timber resources. The committee, whose headquarters are in the Department of Commerce, Washington, D. C., works in close cooperation with a number of official and private organizations, notably the Bureau of Standards of the Department of Commerce and the Forest Products Laboratory of the Forest Service, Department of Agriculture. The committee is working for the elimination of waste in the entire range—production, distribution, and consumption—of forest products, and for coordination of the various branches of the forest industries, with the sawmill as the center, to permit one branch to utilize raw materials discarded by another. Special study is given to adoption of improved machinery for decreasing wood waste.

FOREWORD

The United States exported to South America in 1928 $1,629,084 worth of unmanufactured wood, $15,663,490 in sawmill products, and $4,497,820 worth of manufactured wood products, a total of $21,790,394. Total South American imports of lumber for 1928 or any recent year are not definitely known, as statistics for some countries are not available. However, total lumber imports of the continent are estimated at about 40 per cent above United States shipments.

South America is an important market for American lumber and lumber products and, as its resources and industries are further developed, it is expected that most of the countries will become larger buyers. While large stands of timber, mostly hardwoods, exist in different parts of the continent, the multiplicity of species in the tropical regions and the deficiency of transportation facilities in many sections indicate slow expansion of the native lumbering industry. As South America as a whole is very much better forested with hardwoods than softwoods, it would appear that in the future it will offer relatively better opportunities for American softwoods.

The United States is South America's nearest large lumber source and our lumber and its products are well liked; usually only price turns business elsewhere. Many American enterprises in South America have been bringing American construction methods to the favorable attention of the general public. The qualities of our construction woods, cooperage, handles, and other products are well known in the different markets. The future trade depends largely on the development of South America, and harbors, railroads, highways, and air lines, as well as general building and industrial use of lumber, offer our exporters excellent opportunities.

WILLIAM L. COOPER, *Director,*
Bureau of Foreign and Domestic Commerce.

Class	Argentina	Bolivia	Brazil	Chile	Colombia	Ecuador	Paraguay	Peru	Uruguay	Venezuela
Unmanufactured wood:										
Logs and hewn timber—										
Hardwoods, M feet								8		86
Softwoods—										
Southern pine, do			40	18				8		
Douglas fir, do	207			911				1,243		
Other, do	11	750			5			390		
Railroad ties—										
Hardwood, number										
Softwood, do		20,833		86,225	19	6		217,529		
Creosoted, do	8,100				28,814			21,400		
Piling, linear feet					156,715			301,652		2,147,258
Telegraph, trolley, and electric-light poles, number				5,140				555		
Sawed timber:										
Hardwoods, M feet								17		
Softwoods—										
Southern pine, do	2,683		338	4	12		26	45	98	1,614
Douglas fir, do	895	42	20	10,269	1,114	48		12,795	54	84
Other, do	75			8				248	15	200
Boards, planks, and scantlings:										
Softwoods—										
Cypress, do	4				414					37
Douglas fir, do	46,298	688	481	14,827	4,686	496		55,573	8,611	2,271
Southern pine, do	204,903	1,213	2,096	476	4,889	181		565	22,948	11,953
White, western, and sugar pine, do	3,212		36	92	106	12		115	1,324	117
Cedar, do	6			1						
Redwood, do	2,214		11	11	228			878	75	2,458
Spruce, do	921		3	35	2			15	318	
Hemlock, do	7,964			8					2,660	5
Other, do	23				18			7	83	814
Hardwoods—										
Ash, do	116		14	9				1		
Mahogany, do	10			8						
Gum, tupelo and black, do	98			30	7					
Hickory, do	26			1				1	6	
Oak, do	13,087	40	117	107	195			451	2,711	13
Poplar, do	201							5		8
Walnut, do	6	2								
Birch, beech, and maple, do	14			8				54	30	111
Other, do			3	1					65	15
Other lumber, do	13,058				140			804	519,326	6,062
Shingles, M					217					
Miscellaneous:										
Veneer and plywood, square feet	319,260			7,232	266,724			17,718	20,044	3,360
Box shooks—										
Southern pine, board feet	140,000			196	1,000			124,492		
Hemlock, do	1,840,258			648,702		474,237		14,761,107		909,830
Spruce, do						3,900		13,782		178,110
Gum, do				54,000	226,843			75,620	2,000	
Other, do	122,646			2,190	4,265			10,855		56,265
Doors, sash, and blinds, number	205			6	21,874	25		418	37	900
Trimmings and moldings, linear feet	1,193,712			1,000	491,477	9,026		141,092		15,150

INTRODUCTION

This bulletin is one of a new series prepared by the lumber division in revision of the original series issued in 1923 on methods of handling lumber imports in foreign countries. It is based on reports made by consular officers of the State Department and representatives of the Department of Commerce.

In each country the established methods of handling imported lumber are set forth, and the operations of agents, importers, and dealers are described. The purchasing policies of large consumers and the governments and the established terms of sales are indicated. The lumber division recommends that established methods of importing lumber be followed, as it has been found that the best way to build up a permanent trade is to handle the business by the methods that have grown up in each country. Shipping lumber on consignment is to be discouraged.

Current import trade methods are covered in the bureau's trade promotion bulletins on lumber for the United Kingdom, the Netherlands, Belgium, France, Switzerland, and Japan. Other important foreign markets for lumber will be covered in this new series on methods of handling lumber abroad. In connection with this series of bulletins, the lumber division has obtained information on the methods of lumber arbitration in each country with lists of available arbitrators.

METHODS OF HANDLING AMERICAN LUMBER IMPORTS IN SOUTH AMERICA

ARGENTINA

BUENOS AIRES

Assistant Commercial Attaché James G. Burke, Vice Consul H. G. Waters, and Assistant Trade Commissioner Sherwood H. Avery

The principal kinds of lumber imported into Argentina and the countries from which they are obtained are as follows: Southern pine from the United States; Douglas fir, west coast hemlock, and white and western pine from the United States and Canada; sugar pine from the United States; redwood from the United States; spruce from the United States and Canada; spruce, pine, and fir from northern and central Europe; oak from the United States, Europe, and Japan; rauli (a beech) from Chile; cedar and hardwoods from Paraguay; and Parana pine from Brazil.

There is no well-defined line of demarcation between agents and importers of lumber in Argentina, imports being handled in several ways—through agents representing foreign exporters on a commission basis, direct by importers for their own account, through purchasing agents in the United States and the United Kingdom, by branch offices of American export commission houses, and by agent-importers. The last named at times handle lumber as agents on a commission basis and at times import for their own account. Some of the largest importers have working arrangements with American firms, while other maintain offices in the United States.

There are no organizations of either agents or importers in the Buenos Aires lumber import trade. Commissions paid vary from 2 to 5 per cent, depending on the size of the shipment. In a few cases the commission is augmented by 50 per cent of the over price obtained. This, however, is very unusual, as competition is severe to the point where averages are seldom obtainable. Commissions may be either on the c. i. f. or f. o. b. vessel value, according to agreement, but the general rule is on the former.

Terms of sale and credits are variable. Transactions are sometimes financed through letters of credit opened in the United States payable against shipping documents, but more often through drafts on the importers varying from sight to 120 days. Firms with established reputation usually ask for terms. European lumber is financed, for the most part, by letters of credit opened in the principal foreign markets. These conditions are now changing somewhat, and offers with more liberal terms of payments are being made. Quotations are usually c. i. f. Argentine ports. The usual terms granted retailers by the Argentine importers are cash, 30 days, with 5 per cent discount. The 30-day term, however, is usually prolonged to 45 by the average Argentine buyer, who is seldom prompt in making payment. This would apply to Buenos Aires sales. In the inte-

rior, or "camp," sales are made on longer terms, depending on harvest conditions. Sometimes credits are carried on with interest accruing through one season to another. The importer also very often sells 60 to 90 days at flat prices, with a discount of 1 per cent per month granted for anticipated payments.

Lumber consignments are unusual, and the only known cases have been on commission arrangement. It should be borne in mind that in the event of the consignee becoming involved in financial difficulties, which may happen, only in the case of stocks on hand is the consignment considered as a privileged liability. In other words, if the consignee has already disposed of the lumber consigned to him he can not be held accountable under Argentine law. Consignments are extremely dangerous and should not be made under any consideration.

Importers do not sell to consumers directly, unless perhaps to the railroads, which require very large quantities, but sell only to wholesalers and retailers. The only consumers large enough to import directly are the railroads—principally British—but these, while buying most of their needs through their London offices, also buy locally when it is convenient. This direct buying is not looked upon as unethical by the local lumber trade. Native ties must be used, according to Argentine law.

Government purchases are made through sealed bids. American exporters should not attempt to solicit this business directly, as no attention is given by the Government to offers unless submitted by an authorized representative on the spot. Some local business is also done through brokers, the margin of commission varying from 1 to 5 per cent. The volume of the business handled in this manner, however, is relatively small and unimportant.

A matter of serious consequence for American lumber exporters is the failure of a consignee to take delivery upon arrival of the vessel, which results in heavy landing charges being assessed against the shipment. The lumber is put into storage, thereby incurring extra expense for wharfage, insurance, and watching, which must be paid before delivery can be taken. Local buyers are not slow to take advantage of such a situation, and the exporter's agent is often at their mercy, because he can not hold out for market prices indefinitely when storage and other charges are accumulating.

There has been little change in the sources of the lumber imported for the River Plate market. While importers have been influenced somewhat by the lower prices and characteristics of certain European spruces and hardwoods, this has been offset to a great extent by the need for the larger dimensions, procurable only in North America. There are only two or three clear-cut preferences for lumber produced elsewhere that make competition difficult for exporters in the United States. Brazilian or Parana pine is the outstanding example. This wood, cheaper because of its proximity to the market, is free from excessive pitch and too many knots. Millions of feet are used annually for boxes by the large meat packers, who otherwise would satisfy their needs by importing from Europe and North America. There is likewise a favored demand for certain Adriatic and central European hardwoods and spruce. While in many cases this is due to particular color and working qualities, low seasonal prices have an important effect. Responsibility for these are probably the low

tramp charter rates on boats from the Mediterranean bound for the River Plate to load with grain.

While southern pine continues to be the most popular American lumber, Douglas fir has, of late, been making considerable progress. During 1928 the greatest development in Douglas fir was the approval of its use and the issuance of specification by the Argentine State Railways, which then purchased nearly 2,000,000 feet for sidings in car construction. Similar steps were taken by the Central Argentine and Central Cordoba Railways.

Most of the large firms handling American lumber in Buenos Aires are regularly increasing their sales of American spruce and hemlock in spite of very heavy European competition and prejudices mentioned elsewhere. West coast hemlock, particularly, is gaining acceptance because of its suitability for box making.

While the sales of California and Idaho pines are likewise increasing, the progress is slower because their characteristics are yet little known, and the price factor has not permitted their use to be attempted as a substitute for other woods. As far as California redwood is concerned, the demand should also increase with the gradual growth in experience and knowledge of its qualities. Furniture and cabinet makers prefer native cedar, which is harder.

The competition in hardwoods is keen, but American oak has been able to hold its position in the market. Small quantities of Slavonian oak continue to be in demand for high-grade furniture and cabinet work. The demand for ash and other similar hardwoods is steadily decreasing. With the increased use of automobiles for both pleasure and commercial purposes, the wheelwright trade is fast disappearing. Until roads are built in the Provinces, however, there will be some call for this wood for omnibuses and farm wagons. There is a small demand for ash for handle making, but most handles are imported.

The gradual movement of colonists to the northward is bringing better and cheaper transportation facilities into districts where numerous species of native hardwoods abound. Quebracho and cedar are being forested on a much more extensive scale than formerly, and a number of native laurels and poplars are finding an outlet into the market where the supremacy of walnut, ash, and oak from the North Temperate Zone was undisputed. The use of quebracho for railway ties in Argentina is now required by the Government. The hardness of the wood and its resistance to the elements have been favored by the railway engineers, whose recommendations are evidently accounting for an increased demand, not only in Argentina and neighboring countries, but also in Europe. The favorable results obtained in using native woods for telegraph poles, fencing, and rough slabbing are likewise making it difficult for American exporters to obtain a share of such business.

The amount of lumber products imported into the River Plate region is steadily decreasing, owing to the establishment of new native woodworking industries. With the exception of a small amount of ready-cut flooring and parquetry, largely furnished by the United States, there is very little to be done. American manufacturers of stock doors and window sashes, along with those anxious to find a new outlet for box shooks, have repeatedly attempted to establish connections in Argentina, even by consigning stock on open

account, but have met with no success. Aside from the high import duties, the combination of cheap labor and lack of standardization in the demand has offset all advantages gained by mass production.

ROSARIO

Consul Wilbert L. Bonney

The principal species of wood imported at Rosario are southern pine from the United States; spruce from the United States and Canada; white pine from the United States and Canada; Douglas fir from the United States and Canada; Parana pine from Brazil; oak from the United States and Europe; walnut from the United States, France, and Italy; and cedar from Brazil and Paraguay.

In northern Argentina lumber imports are handled through agents on a commission basis and purchased outright by importers in Rosario, and distributed directly by the importers to the consumers. There is no fixed distinction between wholesale and retail sales, since wholesalers in Rosario are usually retailers also. There is no organization of importers or agents.

Railroads have their purchasing offices in Buenos Aires and not in Rosario or in other interior towns. Furniture factories consume considerable amounts of oak and cabinet woods.

Government requirements at Rosario are inappreciable, since there are no Government structures or works requiring wood as building material. The port works of Rosario have occasional need for timber and constitute the most important buyer in the district when repairing or extending their docks. Southern pine is largely used. American lumber is not sold on consignment in Rosario.

Credit terms to importing houses, when granted, run from 60 days to 6 months. The matter of credit terms is not important to the buyers, as they are usually able to pay cash on delivery of cargo, and credit becomes only a question of whether the rate of interest charged is higher than the local bank rate.

There has been a considerable increase in the use of Brazilian Parana pine in the Rosario district, and to some extent it comes into competition with southern pine. The use of Brazilian pine began before the war, but the quantities imported were small and its use not extensive. The war partially cut off supplies of lumber from other sources and necessarily increased the importation from Brazil. As a result, carpenters and joiners grew accustomed to working with Parana pine, and their prejudice against it became somewhat diminished, at least for certain purposes. Parana pine can not be exposed to sun or water, but it is suitable for shelving, inside casings, boxes, and partitions, and it is made into cheap furniture stained to resemble American oak. It can be used for billboards, scaffolding, and temporary structures. It can not be used satisfactorily for flooring, bridgework, outside finishing, car building, decks, cabins, or roofings, nor for permanent farm buildings.

Parana pine is lighter than southern pine, and therefore takes a lower railroad freight rate to interior points. It is received in cargo lots directly at Rosario and Santa Fe. All lumber dealers import small quantities of pine from Brazil to complete their stocks. A box factory also does a retail business in Brazilian pine.

The competition of Parana pine with southern pine covers only a certain field of uses. Prices are usually below the prices of southern pine, although it is thought the relative qualities of the two species would justify a greater difference than actually exists.

Native Argentine cedar from the Provinces of Tucuman, Jujuy, and Catamarca may prove to be a partial substitute for all kinds of imported softwoods. The cost of native cedar in Rosario is largely a matter of railway freight rates from the distant interior, which are greatly in excess of the ocean freight rates on Brazilian and Uruguayan cedar or other lumber from its foreign source to Rosario or to Santa Fe. Should native cedar replace Brazilian cedar in this market, it would be likely to come into use also for some of the purposes now served by southern pine.

[Additional information upon the Argentine market for lumber will be found in Lumber Markets of the East Coast of South America, Special Agents Series No. 112, published by the Bureau of Foreign and Domestic Commerce in 1916. Its price is 25 cents. Trade Information Bulletin No. 493, Parana Pine Lumber Industry in Brazil, price 10 cents, is a comprehensive survey of the Brazilian pine industry.]

IMPORTS OF LUMBER INTO ARGENTINA

Items		1926	1927
Pitch pine (practically all from United States):			
Rough	board feet	156,794,500	188,225,100
Dressed	do	400	25,200
Spruce (mostly European and United States):			
Rough	do	91,493,200	133,436,400
Dressed	do	487,300	11,200
White pine (mostly Parana pine and Chilean pine):			
Rough	do	65,734,700	61,922,900
Dressed	do	150,500	37,100
American hardwoods (mostly Paraguayan) as lumber or sawn timber	do	25,568,500	20,396,600
Coigue, Chilean roble, maple, beech, and other miscellaneous woods as logs or sawn (chiefly Chilean woods)	board feet	7,784,200	18,596,600
Spanish cedar, sawn	do	15,107,500	11,756,400
Oak, rough lumber (mostly from United States)	do	11,486,800	14,225,900
Fence pickets (mostly from Paraguay)	do	2,489,800	1,926,800
Ash, rough lumber (United States and European)	do	266,200	348,900
Walnut boards	do	56,000	114,200
Mahogany boards	do	77,600	19,700
Miscellaneous pickets (mostly from Germany and Italy)	do	[1] 129,600	[1] 137,600
Spanish cedar logs (mostly from Paraguay and Brazil)	do	[2] 11,291,000	[2] 9,848,000
Quebracho logs (mostly from Paraguay)	do	[3] 7,219,600	[3] 6,811,000
Telegraph and telephone poles	number	65,737	71,524
Palm lamp-posts	do	115	3,909
Hardwood posts	do	26,548	29,274
Casks and barrels and shooks for (mostly from United States)	do	1,233,967	949,237
Veneer (mostly European):			
Walnut	square feet	465,800	1,249,100
Mahogany	do	644,300	271,000
Oak	do	261,100	204,600
Principal wood manufactures:			
Handles, ax, fork, pick, hose, shovel, scythe, and such (mostly from the United States, Italy, and the United Kingdom)	dozens	97,406	91,305
Handles, hatchet, hammer, file, awl, etc., for artisans' tools (mostly from the United States and Germany)	hundreds		
Boxes "for dozen bottles and for vermicelli" (mostly from Germany and the United States)	number	5,145	5,772
Boxes for meat packers (mostly from Sweden)	do	21,721	73,316
Boxes, other, including cigar boxes (mostly from Sweden)	pounds	619,234	654,178
Parquetry (mostly from Belgium and Italy)	square feet	6,174,372	8,204,090
Cork bark, slabs, and waste (mostly from Spain)	pounds	174,600	94,600
Cork, manufactures of (mostly from Spain)	do	8,150,825	3,707,868
	do	657,119	914,607

[1] Converted from weight at the rate of 4 pounds to the board foot.
[2] Converted from weight at the rate of 5 pounds to the board foot.
[3] Converted from weight at the rate of 7 pounds to the board foot.

Source: El Comercio Exterior, 1926 and 1927, Bulletin 201.

URUGUAY

Commercial Attaché Clarence C. Brooks and Consul David J. D. Myers, Montevideo, and Assistant Commercial Attaché James G. Burke

The principal species of wood imported into Uruguay are southern pine, Douglas fir, spruce, west coast hemlock, and oak from the United States; Parana pine and cedar from Brazil; and quebracho and other native hardwoods from Paraguay and northern Argentina. There are also small parcels of spruce, plywoods, and veneers imported from north European producers and odd lots of spruce, pine, and Slavonian oak from the Adriatic.

The bulk of the shipments from the United States are handled by several merchants having regular connections in New York, on the Gulf, and on the west coast. These merchants sell to 28 or 30 importers who rarely have imported on their own account. Besides the local merchants, there are also commission merchants and representatives of American lumber shippers in Buenos Aires who regularly sell to importers in Montevideo.

There is considerable variance in the terms under which American lumber is sold in Uruguay. Generally speaking, local merchants or Buenos Aires agents receive from 2 to 2½ per cent from their American connections for their services, and importers pay by irrevocable letter of credit opened in the United States. There are also some importers who prefer to pay in two drafts, one covering ocean freight and the other the cargo. The former is payable at sight on presentation of documents in Montevideo, and the draft covering cargo is payable in the same manner in New York against shipping documents. There are cases on record, however, of American shippers who have allowed their Uruguayan clients 60 days acceptance dating from presentation of documents.

Most of the Parana pine sold in Uruguay is handled by agents of importers and merchants directly in touch with lumber firms in the southern part of Brazil. Owing to heavy competition and the refusal of the Brazilian lumber exporters to grant terms, quotations are f. o. b. Parangua, Rio Grande, and other points of embarkation, and payment is in advance. Except for scattered shipments of pine and hardwoods from the Adriatic brought on tramp steamers coming to the River Plate to load with grains for Europe, the Uruguayan importer has to pay European shippers by irrevocable letter of credit.

The Lumber Importers Association in Montevideo, known as the Centro de Barranqueros, is an important factor in the lumber trade in Uruguay. The association has drawn up an exclusive reciprocal trading agreement between its members and the merchants.

Southern pine is used for heavy construction work where strength is required. Kiln-dried saps are in great demand for flooring. Although the importation of Douglas fir has increased because of its cheaper price, there still remains a decided preference in favor of southern pine. Parana pine is used for all classes of cheap, rough construction work where strength is not a factor, in making boxes, and in temporary work of all kinds. The packing plants in Uruguay use large quantities of Parana pine, and somewhat less European spruce, for packing cases for tinned meats. The furniture shops employ mostly native hardwoods from Paraguay and northern

Argentina and Brazilian cedar. They also purchase, from time to time, small quantities of plywood and veneer from northern Europe and the United States.

Colonia and Salto are the principal markets outside the capital, Montevideo, for importing lumber, especially southern pine and Douglas fir. The importers located in those cities purchase equally from commission merchants in Buenos Aires and Montevideo. In the interior towns, such as Durazno, Florida, and Minas, the market is in the hands of local importers, who generally deal through merchants located in Montevideo.

Maritime shipments of Brazilian pine are sold f. o. b. Brazilian ports. Those coming by rail are quoted c. i. f. Montevideo, the original invoices including customs charges and freight.

Parana pine lumber is graded and seasoned before being shipped. The principal dimensions imported are 1 inch, 1½ inches, and 2 by 12 inches by 16 and 18 feet.

Such lumber reaches the consumer generally through the importers, who maintain "barracas" or lumberyards, whence the material is sold in varying lots.

Brazilian pine is used for all classes of cheap, rough work, such as boxes, cheap houses, cheap furniture, temporary constructions, and wooden walks.

[Additional information upon the Uruguayan market for lumber will be found in Lumber Markets of the East Coast of South America, Special Agents Series No. 112, published by the Bureau of Foreign and Domestic Commerce in 1916. It sells for 25 cents.]

IMPORTS OF LUMBER INTO URUGUAY

Class		1927		1928	
		Quantity	Pesos [1]	Quantity	Pesos [1]
Southern pine	square meters	3,984,424	1,673,460	2,187,949	1,006,457
White pine	do	35,903	17,952	79,320	36,487
Cedar	do	[2]	[2]	119,090	130,999
Brazil pine	kilos	[3]	[4]	16,869,014	455,463
Pickets of pine	number	1,243,451	56,686	453,008	27,180
Pickets of hardwood	do	1,048,285	58,704	1,271,230	127,123
Hardwood props	do	165,791	13,263	296,739	5,935
Hardwoods, general	square meters	491,928	113,219	[5] 9,859,058	414,804
Hardwood logs	number	9,869	133,770	[5] 4,888,459	39,107
Cedar logs and timber	do	9,392	126,807	[5] 69,155	692
Firewood	kilos	10,983,007	54,915	7,674,074	38,370
Box shooks	do	[3]	[4]	1,677,695	10,066
Broomsticks	number	[2]	[4]	1,550,500	38,757
Hardwood ties	kilos	[2]	[4]	1,751,505	21,018
Logs of South American hardwoods	do	173,432	1,214	9,845,653	59,074
Logs not specified	do	10,704	1,972	15,160	152
Posts and stakes	number	316,339	132,863	425,658	178,776

[1] Peso equals $1.03. [2] Not available. [3] Kilos.

Source: Uruguayan Director General of Customs.

PARAGUAY

Consul Harry Campbell, Asuncion

Owing to the large production of good timber in the Republic of Paraguay, there are practically no imports of American lumber into that country. Although the American softwood lumber is produced

cheaper than the hardwoods of Paraguay, transportation and other charges make the cost laid down in the latter country so high that such lumber can not compete with the local product. The capital, Asuncion, is more than 1,000 miles from the sea, and the long water haul by way of the Paraguay River makes freight charges on bulky cargo, such as lumber, almost prohibitive. Dealers in Paraguay usually purchase lumber, other than native or Brazilian, in the River Plate ports.

BRAZIL

Since the comprehensive survey of the Brazilian market reported in Lumber Markets of the East Coast of South America, Special Agents Series No. 112, conditions have changed to a greater degree than in any other South American country importing lumber from the United States.

In 1916, when that report was issued, Brazil was exporting annually one-third, or 15,000,000 feet, of its Parana pine production, while the United States, Canada, and Europe were sending pine and spruce to Brazil to the extent of over four times this amount, largely for uses similar to those of Parana pine. The cut of hardwoods at that time constituted the major portion of Brazilian lumber production. Contrasted to the foregoing, in 1921 the production of Parana pine lumber was 118,000,000 feet, of which 48,000,000 feet was exported, practically all to Argentina and Uruguay. Brazilian exports of Parana pine have, during the last few years, shown a tendency to fall off. The following are the official export figures: In 1922, 100,773,787 kilos; 1923, 143,242,550 kilos; 1924, 112,907,068 kilos; 1925, 95,844,426 kilos; 1926, 79,939,005 kilos; 1927, 88,791,000 kilos; and 1928, 79,819,667 kilos. Further, Parana pine has displaced American softwood lumber to a very large extent in the markets of southern Brazil, and to-day it is only the markets of Rio de Janeiro and districts south of that city which take any American softwoods. While the Brazilian Parana pine industry has in the past few years had the greatest development of any portion of the Brazilian lumber industry, the hardwood industry of that country is still functioning efficiently and is supplying the greater part of its hardwood needs.

PARA

Consul George H. Pickerell

For many years the northern part of Brazil has not been an importer of lumber because of the development of its extensive native forests. The woods of northern Brazil are mostly hardwoods, including cedar. These woods, with Parana pine from southern Brazil, are sufficient for all local construction and factory requirements.

In former years it was customary for the individual importers to place their orders through the various commission houses in New York City, and, as the freight rates were very reasonable and the trimonthly service dependable, they could limit their orders to small lots or immediate requirements, thus reducing the necessity for carrying a large stock, besides distributing their purchase account in a manner to cause them very little credit difficulty. With the development of the local timber business, this importation ceased entirely,

and it is doubtful if it will ever be revived. This condition is also favored by the Federal Government, which requires that lumber supplies for Government contracts be secured from native furnishers, although it is very difficult for the shippers to supply large amounts of lumber on short notice or even compete in the matter of prices. Large quantities of railroad ties have been exported to Spain and Portugal.

PERNAMBUCO

Consul C. R. Cameron

There are no importers of lumber in Pernambuco, and no American lumber is imported into this consular district. Considerable lumber is shipped in coastwise from northern and southern Brazil for railroad ties and construction purposes; also for use in furniture factories and for making packing boxes for canned fruit and cigarettes, as well as the manufacture of sugar barrels, especially vats for fermentation purposes on the sugar uzinas. Jobbers also get a certain amount coastwise for reshipment purposes. Hardwood is either produced locally or brought in from Para. The softwood, principally Parana pine, comes from Santa Catharina and Parana, Brazil.

BAHIA

Consul Thomas H. Bevan

Prior to 1914 about 250,000 feet of southern pine was imported into Bahia annually from the United States and a like amount of pine from Norway. The shipments from the United States were all made in small lots and routed via New York, which made it necessary for the local importer to pay the additional freight from the Gulf Coast to New York. The demand in Bahia was never sufficiently large to warrant shipments in cargo lots.

The rise in the price of southern pine in the United States during the World War and the prohibitive freight rates to South America, together with keen competition from the lumber producers of the State of Parana, made the exportation of southern pine to Bahia unprofitable after 1915. During the interim the lumber manufacturers of the State of Parana have completely captured the lumber trade of the Bahia district. The freight rate on Parana pine from the south of Brazil is relatively small as compared with the rate on lumber from the United States.

SAO PAULO

Consul E. M. Lawton and Assistant Trade Commissioner Richard C. Long

The only wood imported into the Sao Paulo consular district before the war was southern pine and north European pine, locally known as "pinho de Riga," and imported from Russia and Sweden. A small amount of lumber continues to come from the United States through importers at Santos and Rio de Janeiro. Native cedar is very popular and is being more and more used and at a price lower than that for imported pine. Southern pine is therefore employed now only for fine window frames and casings or when especially called for in specifications.

Regardless of the lack of lumber imports at present into Sao Paulo, it is suggested for possible future trade that the most acceptable plan for distribution, from the importer's point of view, would be through agents or representatives on a commission basis. The present demand for American woods is very small.

There is only one agency firm in Sao Paulo selling American lumber on a commission basis and only six importers of any importance who would probably oppose any campaign of American exporters who would probably oppose any campaign of American exporters and use it as an argument to secure improved railroad facilities with Parana, the second State of the consular district.

There are firms in Sao Paulo sufficiently important to import complete cargoes of lumber, but no such quantities have ever been imported. Local lumber dealers in native woods usually supply all classes of trade. There are no organizations of importers.

State and Federal Government contracts or public works invariably use native woods. Such business is handled by local lumber dealers, and if prices were favorable it is possible that imported wood might be acceptable for such work. The Brazilian people are, however, proud of their fine woods and, in general, believe the native lumber superior for local consumption.

The difficulty in importing American lumber is largely the question of price. Prospective agents would not be expected to develop any very active campaign unless they were able to offer some kinds of lumber for less than the price of the native product. In the last few years the local lumber industry has made rapid progress, and Parana pine has replaced southern pine to a large extent. Despite this fact, however, the American wood continues to be specified by architects for outside work, such as shutters and casements, its ability to withstand the elements being far superior to that of the native pine. The low cost of exchange and the organization of a producers' syndicate in December, 1926, to handle sales, have also aided the development of the Parana pine industry.

PORTO ALEGRE

Consul Samuel T. Lee

The Porto Alegre consular district, which includes the two southernmost States of Brazil, Rio Grande do Sul and Santa Catharina, does not import foreign lumber. Instead, these States export large amounts of Parana pine lumber to the River Plate republics and smaller amounts to the more northern States of Brazil.

RIO DE JANEIRO

Consul General Alphonse Gaulin and Acting Commercial Attaché A. Ogden Pierrot

At the present time practically the only lumber imported into Rio de Janeiro is southern pine from the United States. The following figures show the total imports of lumber of all kinds into all of Brazil:

	Kilos
1922	5,963,797
1923	3,990,476
1924	3,631,639
1925	2,845,983
1926	7,334,030

There are no regularly established lumber brokers; imports are generally handled through recognized lumber importers. The importers sell to wholesalers and retail yards, and also direct to such large consumers as factories and carpenter shops. Large consumers, such as contractors, shipyards, and factories, ordinarily do not import direct.

The Government does not buy direct, and no results could be obtained by direct soliciting. Government jobs of any great proportion are let to contractors, who procure their own lumber. Local firms are preferred by the Government on account of their nationality, because they have capital and credit that permit them to await payment a year or longer, and because they are prepared to cut lumber according to the Government specifications.

As a rule, lumber shipments are sold cash against documents in New York. In some cases lumber exporters allow 90 days to local importers. The demand for American lumber is small, and importers and consumers have their connections well established.

Very little lumber other than American is now being imported. Swedish, Norwegian, Finnish, and central European lumber, when handled, is sold through London houses.

Parana pine from southern Brazil has replaced American lumber, southern pine chiefly, except where strength or enduring qualities, exposure to weather or insects, or permanent construction is contemplated. Parana pine, when used for forms in concrete construction, is far inferior to southern pine, and southern pine is also considered superior to the local product for flooring and other building purposes. Another important factor in favor of American lumber is the fact that local mills can not deliver lumber in large quantities at short notice.

[Additional information upon the market for lumber in Brazil will be found in Special Agents Series No. 112, entitled "Lumber Markets of the East Coast of South America," published by the Bureau of Foreign and Domestic Commerce in 1916. A special report on the domestic and export trade in Parana pine is contained in Trade Information Bulletin No. 493, entitled "Parana Pine Lumber Industry of Brazil." It is a comprehensive report on the Parana pine industry and covers the development of the industry as well as reporting on the actual woods and mill operations, grading, seasoning, transportation, the domestic trade and particularly the large export trade to Argentina and Uruguay.]

EXPORTS OF LUMBER FROM BRAZIL IN 1928

Species and destination	Tons	Value in dollars	Species and destination	Tons	Value in dollars
Pine:			Itauba: Portugal	2,912	65,015
Argentina	70,965	1,562,895	Massaranduba:		
Uruguay	8,797	195,422	Spain	1,334	27,451
United States	56	1,255	Portugal	727	14,753
Other countries	4	97	Belgium	144	2,929
Cedar:			Germany	241	6,925
Argentina	3,425	115,965	Other countries	68	1,380
Uruguay	1,763	59,406	Rosewood:		
Portugal	554	15,780	France	959	51,605
United States	280	7,963	United States	987	42,340
Germany	180	5,315	Germany	330	13,696
France	130	3,575	Portugal	118	6,611
Spain	117	3,312	Belgium	65	3,474
Other countries	88	2,565	Other countries	59	2,943

EXPORTS OF LUMBER FROM BRAZIL IN 1928—Continued

Species and destination	Tons	Value in dollars
Freijo:		
Portugal	2,047	47,168
Other countries	100	2,511
Uracauhuba:		
Portugal	1,228	28,561
Spain	133	3,557
Other countries	55	1,286
Guajuviro: Uruguay	812	21,360
Andiroba:		
Great Britain	912	75,989
United States	119	9,788
France	154	12,888
Other countries	124	10,093
Quebracho:		
Paraguay	3,837	39,420
Argentina	561	2,452
Other countries	140	840
Sebastiao arruda:		
Netherlands	83	4,560
Italy	55	3,833
Other countries	137	4,976
Sucupira:		
Portugal	248	5,276
Other counties	18	388
Peroba:		
United States	136	5,410
Portugal	58	2,505
France	61	2,311
Other countries	9	346
Imbuia:		
Belgium	109	5,616
United States	85	2,680
Other countries	16	629
Pau roxo:		
France	203	5,191
Other countries	51	1,567
Pau amarello:		
Belgium	60	1,705
Portugal	54	1,539
Germany	50	1,422
United States	40	1,133
Other countries	29	820
Pau Brasil:		
Germany	120	4,852
Other countries	37	1,656
Louro:		
Spain	75	1,529
Other countries	70	1,398
Goncalo alves:		
United States	73	2,818
Other countries	55	1,728
Capiuba:		
Portugal	49	1,106
Other countries	7	152
Acaju:		
Portugal	3	70
Other countries	1	24
Uncnumerated wood:		
Uruguay	1,968	51,249
Argentina	952	24,399
Spain	502	11,082
Portugal	378	10,488
France	148	8,828
Great Britain	109	3,763
Germany	94	2,179
United States	54	2,042
Other countries	55	2,229
Dressed lumber:		
Argentina	617	17,2240
Uruguay	586	16,749
United States	105	7,305
Other countries	59	3,057

BRITISH GUIANA

Vice Consul Harold R. Brown, Georgetown

The principal species of wood imported into British Guiana are southern pine (pitch pine), which comes entirely from the United States, and white pine, which comes from Canada, with some Douglas fir.

According to official statistics, the importation of undressed and dressed pitch (southern) pine into British Guiana since 1923 was as follows. The figures for the first six months of 1929 are unofficial, having been taken from the Commercial Review published by the Georgetown Chamber of Commerce.

	Board feet
1923	789,511
1924	1,709,642
1925	1,532,797
1926	1,542,694
1927	705,039
1928	1,084,606
1929 (6 months)	1,114,481

Pitch pine is one of the principal exports from the United States to British Guiana. It will be observed that the quantity imported during the first six months of 1929 exceeded the 1928 total by 29,815 feet. It is anticipated that imports of this commodity in 1929 will

exceed the imports in any of the last six years, in spite of strenuous efforts to substitute local woods and Canadian Douglas fir.

Pitch pine prices are quoted c. i. f. Georgetown, and business is done through selling agents by cable. Commissions are usually included in the prices quoted by exporters. Cable expenses are paid by arrangement. Orders are shipped direct to buyers according to the agent's instructions. Drafts should be drawn through the buyers' bank. Thirty days' sight documents are the usual terms of acceptance. The grades of pitch pine imported are all heart or prime merchantable. More scantlings are used than boards, and most of the pitch pine imported is undressed.

Government requirements are supplied by the local importers. It is not advisable for American exporters to solicit this class of business direct in ordinary cases.

The British preferential tariff has apparently had an unfavorable influence on the British Guiana trade in American lumber. The following tables show the foreign trade of the country in lumber.

IMPORTS OF LUMBER INTO BRITISH GUIANA IN 1928

Class and country of origin	Quantity	Value
UNMANUFACTURED		
Pitch pine:		
Undressed—		
United States		
——board feet	998,412	$57,892
Dressed—		
United States——do	86,274	4,850
Other unmanufactured lumber:		
Undressed—		
United Kingdom		
——board feet—	390	503
Canada——do	2,335,548	116,552
Surinam——do	565	45
Total——do	2,336,503	117,100
Dressed—		
United Kingdom——do	100	14
Canada——do	167,647	10,427
United States——do	144	40
Total——do	167,891	10,481
Douglas fir:		
Undressed—		
Canada——do	180,098	8,828
Dressed—		
Canada——do	35,707	1,804
MANUFACTURED		
Coffins, caskets, doors, sash, blinds; house, office, cabinet, or store furniture:		
United Kingdom		$8,329
Canada		6,667
British West Indies		716
Bermuda		2
Hong Kong		849
United States		496
Germany		3,025
Austria		417
Poland		107
Surinam		2
Total		20,671
Other kinds:		
United Kingdom		1,944
Canada		25,676
British West Indies		2,411
United States		59,810
Germany		1,206
Netherlands		63
Surinam		135
Sweden		107
Venezuela		6
French Guiana		58
Total		91,425

EXPORTS OF LUMBER FROM BRITISH GUIANA DURING 1928

Class and country of destination	Quantity	Value
UNMANUFACTURED		
Lumber:		
Cedar—		
British West Indies ..... board feet	3,005	$227
United States....do....	111	16
Total.....do....	3,116	243
Greenheart—		
United Kingdom..do....	75,432	8,893
Canada.....do....	16,001	1,887
British West Indies ..... board feet	57,497	5,496
United States....do....	17,252	1,520
Netherlands.....do....	16,748	1,575
Surinam.....do....	1,996	215
French West Indies ..... board feet	5,602	560
Venezuela.....do....	21	2
Total.....do....	190,549	20,257
Crabwood—		
United Kingdom..do....	702	34
United States....do....	501	40
Total.....do....	1,203	74
Mora—		
United States....do....	27	2
Other kinds—		
United Kingdom..do....	324	27
Canada.....do....	52	9
United States....do....	502	70
Total.....do....	878	106
Timber:		
Cedar—		
United Kingdom ..... cubic feet	72	50
United States....do....	456	301
Total.....do....	528	351
UNMANUFACTURED—contd.		
Timber—Continued.		
Greenheart—		
United Kingdom ..... cubic feet	68,862	$52,520
Canada.....do....	3	4
British West Indies ..... cubic feet	3,085	3,399
British East Indies ..... cubic feet	25	25
Panama.....do....	3,565	7,130
Netherlands.....do....	50,889	35,790
French West Indies ..... cubic feet	5,036	2,473
Venezuela.....do....	1,379	2,576
Total.....do....	132,844	103,717
Crabwood—		
United Kingdom..do....	431	175
Other kinds—		
United Kingdom..do....	45	46
British West Indies ..... cubic feet	182	119
Total.....do....	227	165
Firewood:		
British West Indies ..tons..	10,054	30,356
MANUFACTURED		
Railway sleepers:		
Canada.....number..	6	9
British West Indies..do....	18,867	17,990
Total.....do....	18,873	17,999
Shingles:		
British West Indies..do....	2,133,050	16,077
Venezuela.....do....	22,500	113
Total.....do....	2,155,550	16,190
Other kinds:		
British West Indies.....	.....	9,725
Surinam.....	.....	150
Total.....	.....	9,875

VENEZUELA

PUERTO CABELLO

Consul William P. Garrety

The only American wood imported into the Puerto Cabello district is southern pine. None is imported through agents of American exporters and none through brokers. It does not seem possible to introduce this system of importing, because importing is done directly by the dealers, whose business is not large enough to import a complete cargo at one time. They saw the wood into boards and sell directly to the consumers.

There are but few lumber importers, and consumers of all grades buy from them. The usual terms of sale are 60 days' sight draft attached to shipping documents. It does not seem desirable to establish American agencies, as the total importation is only 500,000 feet a year.

CARACAS

Consul Thomas W. Voetter and Commercial Attaché Halbert E. Watkins

In past years by far the largest tonnage of lumber imported into Venezuela has been southern pine from the United States. Southern pine timber of over 10 by 10 inches is an important item.

Many enterprises, including petroleum development companies, have, by the terms of their concessions, the privilege of importing free of duty articles needed for carrying on their operations. Much of the small-sized lumber is imported by these industrial companies. To obtain freedom from customs duties, the articles do not come through dealers in Venezuela or ordinary trade channels.

All the ordinary importations (except those by concerns having concessions) are made by the firms owning sawmills in the principal cities. These firms import American softwoods in the large sizes and resaw, plane, and match them in the country. It is not possible, on account of the customs duties, for retailers to import the smaller sizes or the planed or matched lumber in competition with the large mills. The latter not only import foreign timber but also work local woods—cedar, mahogany, rauli, apamate, and others. They sell not only to retailers but also in any quantity to consumers.

As the forests of Venezuela are cut, it will be easier for American wood in the form of timber to compete with native material, which is badly manufactured and often damaged in transit. California redwood, known to the Venezuelan trade under the name of "pino colorado," has the same exemption of duty as southern pine if imported in thicknesses not less than 25 centimeters (9.84 inches). Recently orders have been secured by local importers of this wood in competition with local woods. The lumber is being used in the construction of doors and window frames.

The larger consumers, who may have concessions which permit articles to enter free of customs duties, naturally import the lumber they need on their own account. These concerns are the railroads, the petroleum companies, privately owned harbor corporations, and a few manufacturing plants. Direct importation by these concerns is the logical method, and there can be no criticism by dealers. The Government regulations covering these importations are very rigid, and it is not easy to divert these duty-free importations to private use.

Formerly the Government departments ordered supplies through representatives of foreign firms established in the country or through some Government official stationed in the country in which purchases were to be made. However, the Government of Venezuela has changed its attitude in this regard, and the policy of the Ministry of Public Works is to buy direct as much as possible without the intervention of local commission agents or importers. The ministry is establishing a sawmill at Puerto Cabello and expects to import southern pine and California redwood timber. It will be the policy of the ministry to manufacture its own lumber which will be used in the construction of houses for laborers and other public works.

It is not easy to make recommendations that will tend to promote a greater sale of American lumber. But little lumber enters into

the construction of Venezuelan dwellings, and in many of the places where lumber is used native woods resistant to the attacks of tropical insects are preferred.

MARACAIBO

Commercial Attaché Halbert E. Watkins and Vice Consul William A. Hickey

Most of the lumber shipped from the United States to the Maracaibo district is imported by the various oil companies engaged in the development of petroleum in the Maracaibo Lake Basin. It is used in the construction of derricks and oil-well rigs; also for houses erected for employees. Lumber for the use of oil companies is purchased directly by their purchasing offices in the United States and is admitted free of duty by the Venezuelan Government when used directly on oil concessions. Some lumber is also imported by local dealers for other purposes.

Southern pine, Douglas fir, California redwood, west coast hemlock and spruce are the principal woods imported into the Maracaibo district.

LA GUAIRA

Vice Consul S. J. Fletcher and Commercial Attaché Halbert E. Watkins

Importations of lumber into the La Guaira district consist for the most part of shipments made to public works departments or to foreign companies engaged in railroading or petroleum development. The few lumber dealers, wholesalers and retailers, are engaged principally in the purchase, sale, and finishing of native woods. A small amount of southern pine is occasionally imported by the local dealers.

From the classifications of imports made by the customs authorities it is impossible to name the species of woods imported. The statement below covers the importations into Venezuela for the calendar year 1927, as reported in the Estadistica Mercantil y Maritima.

Timber, sawn and round, over 10 inches in thickness:

Countries of origin—	Board feet
United States	7,508,781
All other	610,244
Total	8,119,025
Ports of entry—	
La Guaira	1,310,715
Maracaibo	5,619,915
Puerto Cabello	442,719
Cristobal Colon	135,432
Total	7,508,781

Rough lumber and timber of less than 10 inches in thickness:

Countries of origin—	
United States	26,759,739
All other	3,483,628
Total	30,243,367

Ports of entry—	Board feet
La Guaira	140,552
Maracaibo	25,587,653
Puerto Cabello	106,704
Ciudad Bolivar	513
La Vela	513
Amuay	876,334
Cristobal Colon	97,470
Total	26,759,739

NOTE.—Quantities estimated at rate of 4,200 pounds per thousand, or 513 board feet per metric ton for timber, etc. (10 by 10 inches or over), and 3,800 pounds per thousand or 580 board feet per metric ton for stuff of the smaller dimensions.

[For further particulars in regard to the Venezuelan lumber industry and lumber import trade, reference is made to Special Agents Series No. 117, Lumber Markets of the West and North Coast of South America, issued in 1916 by the Bureau of Foreign and Domestic Commerce. The price is 25 cents.]

COLOMBIA

SANTA MARTA

Consul Leroy R. Sawyer and Vice Consul Lawrence F. Cotte

Very little imported lumber is used in the Santa Marta district, the local sawmills providing enough to meet the demands set up by the house builders and furniture manufacturers in the city.

Native houses of the better class have practically no lumber in their construction except rafters, which are usually small logs shaped to dimension with the adz, and often only partly so. Houses of the poorer people are largely made of mud and wattles or of rubble, or of a combination of all three, little real timber being used. There are no agents or brokers or agent-importers of lumber, or association of lumber agents of any kind in this district.

The Department of the Magdalena, the local government, confines itself purely to administrative functions and has no public undertakings in which lumber is needed.

BARRANQUILLA

Consul Maurice F. Stafford

Importations of lumber into Barranquilla are small and do not warrant the serious attention of American exporters. Formerly some timber suitable for construction and repair of river steamboats was imported from the United States, but, according to the best information obtainable, the single railroad and an oil company are the only importers to be considered.

The railway buys a certain amount of lumber, such as bridge timber. The oil company imports boards for the manufacture of small boxes to contain two 5-gallon tins for kerosene or gasoline. All this is imported by the consumers, there being no agents or brokers, and the local yards handle only lumber produced in Colombia.

Douglas fir and southern pine are the only kinds being received, all coming from the United States. Aside from the ability to obtain Colombian wood to supply practically all needs, the high rate

of duty discourages importation. While reports concerning the lumber resources of Colombia differ, it appears that if they were properly exploited the country could become an exporter of lumber, especially of cedar, cotivo (a softwood), and abarco (a hardwood).

CARTAGENA

Vice Consul Edward B. Rand

There is a steady demand for southern pine in the Cartagena consular district but practically no market for imported lumber of other kinds. Native mahogany and cedar are used extensively for the manufacture of furniture and for interior finish, but are too expensive for general building purposes. The extent of the importation of southern pine can not be accurately determined owing to the absence of statistics, but it is estimated to approximate $125,000 annually.

BOGOTA

Assistant Trade Commissioner Albert E. Ellis

Colombia does not offer a very extensive market to American exporters of lumber. Imports consist principally of Douglas fir, southern pine, redwood, and cypress. Most of such lumber is used by foreign corporations doing exploitation work within the country, in connection with their work and building of quarters. Piling for construction of piers and some railroad ties, mostly treated, are also imported from the United States and used chiefly in the coastal areas.

Large quantities of tropical hardwoods are produced within the Republic; they withstand, to a great extent, the destruction caused by termites and other wood-eating insects. Cedar is employed a great deal in the construction of buildings, but in most cases very little lumber is used, cement and brick being the principal building materials. The slow transportation and its heavy cost greatly restrict the use of imported lumber in the interior section of Colombia. Native timber is preferred, since it is easy to obtain, costs less, and is especially adaptable in the use for railroad ties and construction.

[Additional information on the lumber market in Colombia may be obtained from Lumber Markets on the West and North Coast of South America, Special Agents Series No. 117, published by the Bureau of Foreign and Domestic Commerce in 1916. It sells for 25 cents.]

IMPORTS OF LUMBER INTO COLOMBIA

Class	1924		1925		1926	
	Kilos	Value	Kilos	Value	Kilos	Value
Cooperage	72,730	$19,859	41,874	$14,231	50,191	$14,588
Ready-cut houses	90,361	21,449	298,110	9,488	27,535	7,194
Dressed lumber	1,067,278	49,834	4,570,751	90,317	1,177,042	62,709
Rough lumber	4,668,878	167,338	4,250,806	164,882	11,244,301	255,229
Shooks	744,402	31,587			836,127	26,593
Veneer	2,241	1,455	2,343	1,403	3,349	2,062

CHILE

SANTIAGO

Commercial Attaché Ralph H. Ackerman

Classifications of imports do not clearly show the different types of lumber imported into Chile, as the term "pino" or pine is used to denote both Douglas fir and southern pine. Cabinet woods cover mahogany, walnut, and any other wood which may happen to fall under this group, and "not otherwise specified" is used for those small quantities not listed elsewhere.

The wide variety of native woods, suited to almost any type of manufacture or use, restricts the Chilean market for foreign forest products. The timbered tracts in the southern part of the country are sufficiently near the consuming centers of the most populous region to supply its construction requirements and fill the needs of the many small woodworking shops. While these latter at times supplement their native stocks with small quantities of foreign lumber for special purposes, it is only in the region lying north from Coquimbo that native woods meet real competition from foreign sources, for coastwise freight rates are so high as to decrease materially the spread between the cost of the foreign and the domestic product. In that region, where American construction lumber has been used for many years, there is a distinct preference for it when prices are not too far out of line with the local woods, for it appears to be better suited to the peculiar climatic conditions and somewhat easier to work, and grading standards permit greater economy in purchasing.

While negligible quantities of hardwoods, such as walnut, mahogany, and ash, and slightly larger quantities of oak, are brought in from abroad, local woods are substituted wherever possible, and it is only for the occasional special order, where imported woods are clearly designated, that quantities are carried in stock. Small quantities of southern pine are likewise imported, but Douglas fir accounts for over 90 per cent of the total lumber imports.

Lumber imports are mostly purchased direct from the American exporters, although a few of these exporters work through local agents who represent them on a commission basis.

Douglas fir is usually imported in parcel lots, although an occasional full-cargo order is placed by some of the concerns operating in the north. It is brought in by only a very few large importers, who distribute either to the small lumberyards or direct to the user, and by some of the larger consumers, such as the mining companies. Some of the purchasing agents for the nitrate companies also make their imports direct when quantities required justify that practice. In sales to the large consumers, shippers secure payment upon delivery of shipping documents, but on sales to lumber importing concerns they frequently grant terms of 60 or 90 days' sight draft attached to shipping documents.

One advantage of the imported lumber over the domestic is its long length. For the most part domestic lumber is cut in 10 and 12 foot lengths, and, for mining purposes especially, long lengths of timber are required.

ARICA [1]

Consul Egmont C. von Tresckow

The only woods imported into the Arica consular district for local consumption are small quantities of Douglas fir and roble (beech) for ties from the south of Chile. The greater part of the American lumber imported into the port of Arica is for the ore and nitrate industries. Up to the present time American lumber for local use has always been imported directly by local lumber dealers, who retail it to their customers.

Because of the small business no lumber brokers or agents are established. Firms doing a general merchandise business would buy lumber if there were a market for it.

There are no large customers in the district. The Ferrocarril Arica-La Paz (Arica-La Paz Railway) and the Arica-Tacna Railway procure roble (beech) ties from the south of Chile. The first-named railroad is Government owned, and all bids must be directed to and are let at the home office, Ministerio de Ferrocariles (Railway Administration), Santiago. The amount of ties consumed is small, and they can evidently be procured cheaper from Chile than from abroad. The one Arica dealer sells for cash, the consumption being so small that the establishment of a direct agency or branch office is out of the question.

An increase in the use of American lumber is doubtful. The district is sparsely populated, and little building is going on. Probably 90 per cent of the buildings are constructed of adobe and the balance mostly of corrugated iron, with a small number of frame buildings. Some have cement floors and some wooden floors. All the better houses have ceilings of wood. The poorest classes live in huts with reed roofs and sides, earth floors, only one door, and shutters in place of windows. The dry, rainless climate obviates the necessity of substantial roofs and closely built dwellings.

Only a great economic change can create a demand for American lumber, since there are no industries and not more than 16,000 acres of irrigated land—all that is available with the present water supply. There is no prospect of any further development on a large scale. Dwellings of all classes are scarce, but the people have not the means to build.

IQUIQUE

Consul Homer Brett

The only foreign lumber imported into the Iquique consular district is Douglas fir, locally known as "Pino Oregon." This all comes from Pacific coast ports of the United States, usually in partial cargoes on steam vessels. There are no local agents or brokers in the lumber business, and importers make their purchases directly from exporters.

Some of the local importers are in financial position to import full cargoes, but they usually find it to their interest to import in smaller quantities and more frequently. All the importers are both wholesalers and retailers, selling to any buyer in any quantity. Government requirements are trivial and supplied by purchases from the importers. There is no reason to believe that sales of American lumber could be materially expanded by changing the methods now in use.

[1] In July, 1929, Chile and Peru settled their long-standing boundary dispute, effecting a settlement whereby the northern part of the Arica consular district reverted to Peru in August, 1929.

ANTOFAGASTA

Consul Stewart E. McMillin

The principal imports of lumber into Antofagasta consist of Douglas fir. Small lots of white pine and sugar pine are imported for pattern making. There are also small imports of oak.

The imports consist usually of rough lumber used for construction purposes, such as railroad ties, bridge beams, and mine timber for Bolivia. Of the total imports of lumber probably 80 per cent is merchantable, used principally by the ore and nitrate industries, 10 per cent select, and 10 per cent mining timber for use in Bolivia. No great amount of lumber is used in buildings, since most of them are built of concrete or of lath and plaster and at a low cost as compared with those made of lumber. There are local sawmills for resawing and dressing rough lumber, since dressed lumber pays a high duty.

In pre-war times and also during the World War schooners from the Pacific coast of the United States brought full cargoes of lumber, consisting principally of Douglas fir, but in recent years imports are usually in parcel lots on steamers. Practically all of the lumber imported comes from the United States.

Timber is one of Chile's most valuable resources, but up to the present, owing to excessive freights and inaccessibility of the forests, which are in the southern Provinces, domestic lumber has not become a serious competitor to American lumber in the Antofagasta district.

The only lumber at present shipped there from the south of Chile is the roble (beech), used for furniture making and in building lighters, and the alamo (a cottonwood), which is used in making inferior ceilings, cheap doors, and furniture. The latter wood is of recognized inferior quality and does not go into the best constructions, since it often arrives green, which causes it to shrink or warp. Another difficulty experienced with domestic lumber is in securing the proper dimensions.

A few American exporters have representatives in Santiago and Valparaiso, and lumber is sometimes bought by local importers from these agents. American exporters do not maintain representatives at Antofagasta. American representatives in Santiago or Valparaiso confine their sales to the importers and the large consumers, such as the copper companies, railways, nitrate mines, and others that are in a position to handle substantial quantities.

The commission on lumber depends entirely upon the agreement between exporter and agent. Where the exporter has established an agent, the commission is paid by the exporter.

The importers are wholesalers and retailers; they also sell to the copper and nitrate mining companies in the interior and to dealers in Bolivia. There is no organization of lumbermen.

The direct importation of lumber by the large consumers is not regarded as unethical by local importers. Usually local lumbermen

have a chance to quote on large contracts, and if their prices are found lower they are given the business. Government requirements are handled through Santiago.

The terms of sale vary from cash against documents to credits of 30, 60, or 90 days.

VALPARAISO

Consul George A. Makinson

The increased exploitation of Chilean forestry resources during the past decade has materially curtailed the Valparaiso demand for imported hardwoods, and orders are placed only at irregular intervals, but a fair market exists for Douglas fir. Shipments of that wood from Pacific coast ports account for over 90 per cent of the total lumber imports.

There is no organization or association of lumber agents and importers in the Valparaiso consular district. Agents' sales are confined largely to lumberyards, although occasionally they accept orders from mines and large manufacturing establishments. They do not sell to the retail trade.

It is not customary to import through agent-importers handling lumber at times as agents on a commission basis and at times purchasing outright from foreign shippers. Such a sales method is not suited to the market and is not favorably regarded by the trade. It is felt that the advent of agent-importers injure business by increasing the keen competition already existing.

The most important lumber importers in central Chile, as a general rule, do not deal through local intermediaries, their usual practice being to buy directly from foreign exporters. All the principal importers maintain branch offices, or at least close business connections, in the principal Chilean ports and are in a position to place orders for large quantities at a time. These firms sell to other wholesalers and also to retail yards and large industrial plants, but do not deal with small consumers.

All Government requirements are filled through public tenders. The Ministry of Public Works, the State Railway Administration, and other Government departments and bureaus purchasing large supplies of merchandise maintain registers of approved purveyors, in which only resident persons or firms may be inscribed. Tenders from nonregistered parties are not acceptable, but a duly inscribed local agent may submit proposals on behalf of his foreign principals. Accepted bids are sometimes subject to long and irritating processes of negotiation before the liquidation of invoices can be effected, so that those unfamiliar with official procedure may hesitate to undertake such operations.

Generally, the conditions of payment to reputable importers are 60-day sight, documents against acceptance. A few American firms insist on payments against documents by sight drafts on New York. In a few exceptional cases others have demanded that confirmed and irrevocable credit be opened before the acceptance of orders.

CONCEPCION

The production of lumber is an important industry of the Concepcion consular district, which extends from the Province of Talca to the Province of Chiloe. This territory is almost conterminous with the Chilean commercial forests.

Chile's forests produce a great variety of timber, suitable for many purposes, which may be substituted for American softwoods and oak, formerly sold to some extent in this district. Among the most important species are the following, which are used for the purposes indicated.

Pehuen.—Sash and door work, flooring, and furniture.
Alerce.—Sash and door work, shingles, barrel staves, etc.
Lingue.—Furniture, cabinetmaking, parquet flooring, etc. The bark is used for tanning.
Rauli, a beech.—Construction work, cabinetmaking, furniture, staves, parquet flooring, etc.; probably the most valuable of Chilean woods.
Roble-pellin, a beech.—Buildings, posts, crossties, etc.
Coigue, a beech.—Buildings, cabinetmaking, crossties, etc.
Laurel.—Boxes, ceiling, and flooring.

There are also found important plantations of exotic trees, such as pine (Monterey and maritime), acacia (locust), eucalyptus, and alamo (a cottonwood), which furnish timber for various uses.

Conditions brought about by the World War have given a great impulse to the domestic production of timber. The low value of Chilean currency in dollar exchange made purchases from the United States extremely difficult and gave the local product its opportunity. Transportation charges, however, are very high on Chilean railways and coastwise vessels.

The importation of lumber and wood into the district is negligible, only very small quantities of Douglas fir entering the port of Talcahuano for use in the Chilean navy yard there. On the other hand, Chile exports lumber, chiefly to Peru, Bolivia, and Argentina. Railway ties are exported, principally from Valdivia.

There are two large lumber companies operating sawmills in the Concepcion district, with branches and yards in the principal cities of Chile. In addition to lumber, they manufacture sash and doors, flooring, boxes, barrels, and other products. One of these firms also imports lumber when there is a demand, operates steamers, owns its own rolling stock, and does a contracting business.

There is a small demand for veneer (plywood) and oak for furniture making. Two important factories operate in the district, but their purchases are made through importers at Santiago. There are no large local consumers of lumber who would be interested in importing on their own account.

MAGALLANES TERRITORY

Consul Austin C. Brady, Punta Arenas

No lumber is now imported into the Magallanes district from the United States, and little lumber is being imported from other coun-

tries. Most of the lumber used is produced in the Territory, and that brought in is principally from central Chile. The possibility of marketing Douglas fir and other Pacific coast lumber has been given some consideration, but importation has not been attempted.

Lumber from other Chilean districts is not handled in cargo lots, and under existing conditions any importation of American lumber would be in parcel lots only.

[For further particulars in regard to Chilean lumber industry and lumber import trade, reference is made to Special Agents Series No. 117, Lumber Markets of the West and North Coasts of South America, issued by the Bureau of Foreign and Domestic Commerce in 1916. It is sold for 25 cents.]

IMPORTS OF LUMBER INTO CHILE IN 1927

	Gross kilos
Cabinet woods, rough:	
Countries of origin—	
Germany	5
Costa Rica	477
United States	8,744
France	65
Great Britain	36
Total	9,327
Ports of entry—	
Chanaral	555
Valparaiso	8,767
Talcahuano	5
Softwoods, rough:	
Countries of origin—	
Germany	330
Ecuador	12
United States	2,310,532
Great Britain	1,615
Total	2,312,489
Ports of entry—	
Arica	9,967
Iquique	57,101
Tocopilla	265,705
Antofogasta	561,331
Taltal	706
Chanaral	1,189,869
Coquimbo	12,607
Valparaiso	214,932
Talcahuano	271
Oak, rough:	
Countries of origin—	
Ecuador	2,664
United States	10,234
Great Britain	58
Total	12,956
Ports of entry—	
Tocopilla	5,002
Antofogasta	804
Valparaiso	7,150

	Gross kilos
Rough lumber, unclassified:	
Countries of origin—	
Germany	434
Argentina	499
United States	20
Great Britain	3
India	647
Japan	100
Total	1,703
Ports of entry—	
Iquique	10
Antofogasta	100
Valparaiso	1,091
Valdivia	3
Punto Arenas	499
Veneer:	
Countries of origin—	
Germany	6,474
Costa Rica	571
Denmark	126
United States	562
France	2,844
Great Britain	1,007
Netherlands	985
Total	12,569
Ports of entry—	
Valparaiso	11,920
Valdivia	50
Punto Arenas	571
Correos	28
Dressed building lumber:	
Countries of origin—	
Germany	1,446
Argentina	37
Belgium	3
Canada	117
United States	695
Great Britain	801
Total	3,099
Ports of entry—	
Arica	54
Tocopilla	1,197
Antofogasta	641
Los Andes	37
Valparaiso	1,170
Millwork for buildings:	
Countries of origin—	
Germany	617
Belgium	2,575
Spain	896
United States	180
France	1,553
Japan	16
Total	5,837
Ports of entry—	
Arica	16
Valparaiso	5,270
Valdivia	551

	Gross kilos
Moldings:	
Countries of origin—	
Germany	5,787
Argentina	115
Belgium	2,108
United States	207
France	763
Great Britain	9
Italy	4,333
Total	13,322
Ports of entry—	
Iquique	553
Antofogasta	303
Los Andes	115
Valparaiso	11,265
Talcahuano	436
Valdivia	83
Punto Arenas	567
Parquetry:	
Countries of origin—	
Germany	4
United States	129
Total	133
Ports of entry—	
Valparaiso	131
Talcahuano	2

FOREST RESOURCES AND LUMBER INDUSTRY OF CHILE [2]

Commercial Attaché Ralph H. Ackerman, Santiago

AREA AND EXTENT OF FORESTS

The wooded regions of Chile extend from the extreme north to the southernmost limits, in latitude from about 23° to 54° south. Climatic conditions range from the semitropical to the frigid, and the wide differences in altitude permit the growth of many species of trees. In the north, however, there exist vast stretches seldom visited by rains where vegetation is limited to river banks and occasional oases and partly irrigated valleys. In this region only restricted areas of scrub growth, unsuitable for commercial purposes, are encountered.

Approximately 60,000 square miles of the area of Chile are covered by forests, according to estimates by the Seccion de Bosques, Pezca y Caza (Bureau of Forestry, Fishery, and Game), which are based to some extent upon detailed information from private sources, although no detailed surveys of the extent of forest lands have thus far been made by the Government.

The six zones into which the country is divided by the Bureau of Forestry, Fishery, and Game are as follows: Zone I, comprising the Provinces of Tacna, Tarapaca, and Antofagasta; Zone II, comprising the Provinces of Atacama and Coquimbo; Zone III, comprising the Provinces of Aconcagua, Valparaiso, Santiago, O'Higgins, Colchagua, Curico, and Talca; Zone IV, comprising the Provinces of Linares, Maule, Nuble, Concepción, Arauco, Bio-Bio, Malleco, Cautin, and most of the Province of Valdivia; Zone V, comprising the lower portion of Valdivia and the Provinces of Llanquihue and Chiloe, and Zone VI, the Territory of Magallanes.

The following table shows the area and forest cover of these zones, portion of Valdivia and the Provinces of Llanquihue and Chiloe; and Game in October, 1924:

CHILEAN FOREST COVER AND LUMBER FORESTS

[In acres]

Regions	Total area	Forest cover	Lumber forest
Zone I	46,117,400	20,000	
Zone II	28,265,800	706,600	
Zone III	16,608,300	1,729,060	30,000
Zone IV	24,270,467	5,434,000	2,000,000
Zone V	28,141,000	10,915,060	1,100,000
Zone VI	42,344,200	20,007,000	700,000
Total	185,747,167	38,811,600	3,830,000

The introduction of trees not indigenous to Chile has not occurred on a large scale, despite favorable climatic and soil conditions which would permit them to be advantageously cultivated to serve the industrial needs of the country better than is now being done by certain natural species. Nevertheless, the extent of cultivated forests is gradually being increased in almost all parts of the country. It is estimated that in Zone I there are approximately 2,000 acres of cultivated species; in Zone II, 4,900 acres; in Zone III, 17,100 acres; in Zone IV, 37,000 acres; and in Zone V, 700 acres.

The reforested area in Chile is approximately 519,578 hectares (1 hectare equals 2.47 acres), according to estimates made in 1922 by the Bureau of Forestry, Fishery, and Game, which were based to some extent on detailed information from private sources. The distribution of reforested woodlands, by Provinces, is as follows:

REFORESTED (RENOVADOS) AREA OF CHILE, 1922 [1]

Province	Hectares	Province	Hectares
Tacna	1	Nuble	9,898
Atacama	2	Concepcion	13,781
Coquimbo	10,487	Arauco	17,590
Aconcagua	13,008	Bio Bio	39,232
Valparaiso	13,355	Malleco	55,139
Santiago	24,586	Cautin	26,564
O'Higgins	7,889	Valdivia	94,041
Colchagua	33,758	Llanquihue	26,977
Curico	13,020	Chiloe	1,214
Talca	32,110	Magallanes	10
Maule	45,544		
Linares	41,372	Total	519,578

[1] The term "renovados" is freely translated as "reforested." A more strict interpretation would be "renewed," as it is used to denote the area from which virgin growth has been removed and on which a second or third growth has occurred.

[2] Reprinted from Trade Information Bulletin No. 324, issued in March, 1925.

DESCRIPTION OF TREES USED FOR COMMERCIAL PURPOSES

There are more than 70 kinds of trees grown in different parts of Chile, according to a series of studies made by the Government, but only a very few of these are commonly used by manufacturing industries. A description of 13 trees principally used for commercial purposes follows:

Araucaria imbricata, commonly called pehuen, pino Chileno, piñon, or *Pinus araucana*, grows in two distinct zones, which might be called the Pacific coast zone and the Andes Mountain zone. In the first, extending roughly from 37° 50′ to 38° 40′ south latitude, growth is sparse and forests are not suited to exploitation on a large scale. In the second, extending from 37° 50′ to 39° 40′ south, roughly covering the mountainous area in this region on the Argentine as well as the Chilean side, the density of the forests and, in places, the total lack of other species have encouraged exploitation on a relatively large scale. It is estimated that there are approximately 240,000 hectares of this species in Chile, with an average growth of 90 trees to the hectare, representing approximately 45,000,000 cubic meters (1 cubic meter of logs=35.3 cubic feet) of standing wood.

Pehuen grows at from 400 to 1,800 meters above sea level, generally in groups or compact stands and on poor, almost sterile, gravelly, volcanic soil, often finding root between the large rocks erupted by volcanoes. Trees average from 145 to 165 feet in height, with a bottom diameter of from 70 to 94 inches. At maturity the tree has somewhat the appearance of an umbrella, with heavy foliage at the top and few or no branches extending from the low part of the trunk of the tree. It produces a very light yellow wood of fine grain, with clearly marked yearly rings, and having a smooth, slightly lustrous appearance.

The many uses for which this wood has been found suitable and the large stands make it one of the most valuable of Chilean woods. Exploitation of these forests has only recently been undertaken, however, inasmuch as the soil on which they grow is not well adapted to agricultural purposes, and total annual production does not exceed 4,000,000 board feet. It is used to some extent in furniture manufacturing, building construction—for flooring and framing, sashes, doors, and windows—and to a smaller extent for boxes.

Experiments to ascertain the adaptability of this wood for wood pulp have proved beyond question that it compares favorably with the best species now used for this purpose, and its accessibility, the existence of ample water power, and availability of labor will, without doubt, eventually encourage the establishment of a paper or wood-pulp industry.

Fitzroya patagonica, more commonly called alerce, lahuan, or lahnel, grows in groups or compact stands and is commonly found in the damp and muddy soils in the highlands to the south of the Valdivia River and north of the River Palena in the provinces of Valdivia and Llanquihue. It is estimated that there are approximately 480,000 hectares of alerce in Chile, with an average growth of 70 trees per hectare. Although the average height of these trees is from 130 to 180 feet, with a trunk diameter of from 60 to 150 inches, they sometimes grow to a height exceeding 250 feet and a trunk circumference of 40 to 50 feet, and are the largest of all Chilean trees. The wood is light red in color, darkening toward the heart, of fine, dense fiber and obscure annual rings.

This wood has a wide variety of uses, both in construction and furniture making, and is said to be suitable for the manufacture of pencils. Its durability and the facility with which it can be split permit it to be used advantageously as laths and shingles. The inaccessibility of some of the best forests of this wood has to some extent restricted its use.

Drymis winterii, commonly called canelo, is to be found throughout the central and southern part of the Republic, rarely growing in compact stands. The tree grows to a height of 90 feet, having a trunk diameter up to 55 inches. The wood is of a light yellow color, darkening toward the heart to a reddish yellow or ashy brown. It is used to some extent for fine furniture and cabinetwork and, to a less extent, as joists and rafters in construction. The bark is rich in tannin and is an antiscorbutic remedy.

Nothofagus dombeyi, commonly called coigüe (of the same botanical family as the American beech), is one of the most representative Chilean trees; it grows from the Province of Talca to the Territory of Magallanes, both in compact stands and mixed with other species. It is to be found on many different kinds of soil—in damp rich loam as well as in poor, gravelly lands. While the height of the coigüe tree averages between 75 and 80 feet, it often exceeds 130 feet. The average diameter is from 40 to 100 inches. The wood is light brown in color, with clear annual rings and weighing 2.7 kilos wet, 1.8 kilos half dry, and 1.2 kilos full dry per board foot. While formerly used to a large extent in boat building and in the construction of buildings, the tendency of this wood to twist and warp and to rot after a few years has gradually restricted its use.

Nothofagus obliqua (of the same botanical family as the American beech), commonly called roble pellín, roble de la frontera, coyam, or coyan, grows from the Province of Valparaiso to the Province of Valdivia and is found in compact stands, averaging between 60 and 70 trees to the hectare, as well as mixed with other species. It is one of the tallest of all Chilean trees, reaching at times a height of 160 feet, although average stands are usually about 125 feet. The diameter at base is usually between 30 and 60 inches. The wood varies with the age of the tree; when young it is given the name of "halle" and is of a light yellow color, can easily be split or cut, and has little resistance to the climate. In adult trees the heart is a deep dark red, becoming lighter toward the bark; the wood is extremely hard and heavy, retains moisture for many years and, when not used in the dry, hot climate of the north, has great durability. The weight per board foot of the wood from adult trees is 2.7 kilos when green, 2.5 kilos half dry, and 1.8 kilos dry.

The roble pellín has served as the basis of Chilean construction for many years, being employed as beams, joists, and girders in building construction, telegraph and telephone posts, pilings, piers, heavy fence posts, and all other purposes for which a heavy, durable, close-grained wood is suitable. It is practically the only wood used as railway ties and has been found to be in excellent condition after 20 or 25 years of constant service. Resistance tests have given the following results: Yield point, 535 kilos per centimeter; tensile strength, 407 kilos per centimeter.

Nothofagus procera, commonly called rauli (of the same botanical family as the American beech), grows from the Province of Maule to Valdivia and is usually found mixed with other species. Average height is 90 to 100 feet, diameter at base 42 to 47 inches, and average number of trees to the hectare, when found in compact stands, is estimated to be 90. The wood is bright red near the heart of the tree, getting lighter toward the bark, with clear annual rings and fine grain, and weighs 2.6 kilos before drying, 1.7 when half dry, and 1.2 when thoroughly dry, per board foot.

It is one of the most commonly used Chilean woods, being employed in furniture manufacturing and cabinetmaking as well as for flooring, stairways, sashes, windows, doors, moldings, and girders in building construction, and for boxes, chests, and staves in the manufacturing industry. It is easily dried and shows little tendency to twist or warp. Resistance tests give the following results: Yield point, 448 kilos per centimeter; tensile strength, 398 kilos per centimeter.

The rauli forests throughout the country have been exploited on a much larger scale than those of any other wood with the possible exception of lingue, and since no attempt has been made to reforest the denuded lands, it is feared that within a relatively short time rauli will disappear as one of the important commercial woods—despite the fact that experiments made by the Government have shown that rauli is one of the most easily reforested trees so far produced in the country.

Thuia chilensis, commonly called ciprés de la Cordillera, is to be found all along the western mountain ranges from the Province of Colchagua to Llanquihue. Although commonly growing in mixed stands, especially with coigüe in the Province of Chillan, it is often found in large clear stands. The trunk of the tree is straight, slightly conical in shape, and the bark is of a dark brown color and rough appearance. The knotty character of the wood has discouraged exploitation of these forests. In the Province of Chillan near the headwaters of the Teno River there exist several large reserves which are still untouched. It is estimated there are over 500,000 hectares covered with species of cypress trees of which the ciprés de la Cordillera is the most frequent and, when found in clear stands, that there are between 50 and 60 trees to the hectare. The average height of trees is from 30 to 35 feet and diameter about 35 inches. The wood is of light yellow color, light in weight, with clear annual rings. It is used principally as fence posts and construction timbers and in boat making, although it is used also to some extent in furniture manufacturing.

Weinmania trichosperma, commonly called tenio, grows in mixed stands from the Province of Concepción to Magallanes, the principal producing areas being in the Provinces of Llanquihue and Chiloe. Trees frequently attain a height of 50 feet, although average stands are 30 to 35 feet, and in diameter from 18 to 20 inches. The wood produced is of a slightly reddish tint with indistinct annual rings, is inclined to twist and warp, and rots easily in a dry climate. The use of this wood is limited to construction timbers, such as beams and joists, and at times it is employed as railway ties.

Sophora tetraptera, commonly called pelu, grows in mixed stands and may be found from the Provinces of Maule to Llanquihue and Chiloe, although only in the latter two Provinces can it be found in appreciable quantities. The average height of trees is from 18 to 20 feet and diameter ranges from 10 to 12 inches. The wood is of a light brown color which darkens toward the heart of the tree. It is heavy and hard, well grained, and has indistinct annual rings. Its hardness and the difficulty with which it may be worked prevent general use in furniture manufacturing, but when well seasoned it makes excellent flooring. Its principal uses are in wagon and shaft making, wheels and hubs of wheels, and for implement handles.

Podocarpus chilina, commonly called mañiu, is to be found from the Provinces of Maule to Llanquihue, but in commercial quantity only in the Provinces of Cautin, Valdivia, and Llanquihue. The average height of trees is from 25 to 30 feet, and the average diameter from 17 to 19 inches. The wood is light yellow in color, well grained, has indistinct annual rings, and is of a fine, dense fiber somewhat resembling American ash. It is used to a small extent in manufacturing furniture, stairways, ceilings, and flooring, and for doors, windows, and sashes.

Laurelia aromatica, commonly called laurel, is to be found in mixed stands from the Province of Aconcagua to Llanquihue and Chiloe, although only in the Provinces of Malleco and Cautin is it still to be be found in quantity. The average height of the trees is between 40 and 50 feet and diameter from 30 to 40 inches, and when found in clear stands the average number of trees to the hectare is between 100 and 110. The wood is light yellow, soft, and easily worked, but is inclined to twist and warp. Its weight is the same as that of coigüe. It is the most commonly used wood for cheap furniture and boxes and is also employed to a less extent in the interiors of buildings. Laurel is also one of the important industrial woods of Chile, but its accessibility and the constant demand of the manufacturing industries have caused large areas of these forests to be destroyed and the land converted to agricultural purposes, limiting existing forests to a very restricted area.

Persea lingue, commonly called lingue, liñe, or litchi, is another of the important industrial woods of Chile. It is of the Lauraceas family, and trees grow to an average height of 55 or 60 feet and 35 to 40 inches in diameter, in both mixed and clear stands. When in clear stands, from 110 to 120 trees are found to the hectare. The trunk is erect, slightly cylindrical in shape, with smooth ash-colored bark. The wood is light brown in color, somewhat lighter than Douglas fir, which it to some extent resembles, weighing 1.4 kilos per board foot when dry. It has a clear grain and clearly visible annual rings; is heavy, fairly hard, elastic, and easy to work, but usually inclined to be knotty. This species is found at rare intervals from the Province of Coquimbo to Valparaiso and Santiago and more often in the Provinces of Malleco, Cautin, and Valdivia. It is used for many purposes and, with rauli, supplies most of the country's needs in the interiors of buildings as well as furniture manufacturing. It is also used as construction timber and in cabinetmaking shops.

Guevina avellana, commonly known as avellano, belongs to the Proteaceas family and is to be found in the damp soils of the Provinces south of Talca to Llanquihue and Chiloe. The average height of trees is 25 to 30 feet and their diameter from 17 to 20 inches. The wood is of a grayish color, darkening almost to a pink toward the heart of the tree, of an attractive grain, hard, and takes a high polish easily. It is used principally for furniture, picture frames, and to some extent for shingles in the damp climate of the south.

The 13 woods mentioned above comprise the most important of the Chilean woods used for industrial purposes. However, there are

various others which are also employed to a small extent. The names (scientific followed by the common) of these woods are given below:

Prosopis siliquastrum	Algarrobor.
Caebalpinea brevifolia	Algarrobilla.
Cryptocaria miersii	Belloto.
Boldoa fragrans	Boldo.
Cordia decandra	Carbon (carbonillo).
Juana australis	Chonta.
Libocedrus tetragona	Ciprés de Guaitecas (ciprés del sur).
Embothium coccineum	Ciruelillo.
Acacia cavenii	Espino.
Porlitera hygrometrica	Guayacan.
Laurelia serrata	Huahuan.
Litrea caustica	Litre.
Prumnopitys elegans	Lleuque.
Myrceugenia luma	Luma.
Eucryphia cordifolia	Muermo (ulmo).
Maytenus boaria	Maitén.
Jubea spectabilis	Palma de Chile.
Tricuspidaria dependens	Patagua.
Cryptocaria peumus	Peumo.
Quillaja saponaria	Quillai.
Lomatia obliqua	Radal (rairal, nogal).
Prosopis Tamarugo	Tamarugo.
Myrceugenia Temu	Temu (palo colorado).
Tepualia stipularis	Tepu.
Caldoluvia paniculata	Tiaca (tiaca-quiaca).
Aextoxnicum punctatus	Tique (aceitunillo, olivillo, palo muerto, teque, roble en Ovalle).

ANNUAL INCREMENT AND ANNUAL CUT

Until the present, the Government has made no effort to ascertain the annual increment or production of the forest products of Chile. Such investigations as have been carried on have been limited almost wholly to the study of the introduction of new species and an analysis of the different species now extant throughout the country, little attention being given to the age of maturity of the different trees or their annual growth and natural reproduction. In the year 1923–24 the Bureau of Forestry, Fishery, and Game made some attempt to ascertain the annual cut throughout the country but, lacking funds to survey the situation properly, they had recourse to statistics such as car loadings and sawmill production. Those figures, however, do not give an idea of the losses incurred annually from forest fires and the appreciable quantities cut for local use, which are hewn or sawed by the field mills and are not transported over the railways. This bureau estimates that since 1911 the annual cut for industrial purposes amounts to approximately 300,000,000 board feet per year. It is safe to assume that at least double this quantity of wood is lost each year by forest fires, many times set for the express purpose of clearing the land. Since a large part of the lumber production is from the lands of agriculturists who annually increase the number of cleared acres by cutting or burning their forests and who seldom replant these areas or permit them to return to their original state, alarm is felt for the future supply of some of the most commonly used construction woods.

FOREST OWNERSHIP

The ownership of more than two-thirds of the forested area of Chile is claimed by the Government but, by reason of the deficient manner in which deeds have been drawn in the past, a great deal of this land is now also being claimed by individuals, and until some decision is given on these claims the Government is unwilling or unable to give exact figures on the area in its possession.

Government-owned land is administered by the Ministry for Foreign Affairs and Colonization, which, by law, has the right to parcel, colonize, auction, or rent any of these lands which, in its opinion, is advisable for the best interests of the State.

Direct supervision of forested lands is in charge of the bureau known as the Bureau of Forestry, Fishery, and Game, which, among other things, is endeavoring to promote reforestation, the conservation and extension of virgin forests, and carry on experiments for the planting of trees not indigenous to the country. This office has charge of the seven national reserves of the country, which embrace approximately 15 per cent of the total forested area of the country in some of the best wooded regions. The extent of these reserves, in hectares, is as follows, but no figures of the amount of sanding timber they contain are available: Malleco, 23,640; Bio-Bio, 40,000; Villarica, 165,000; Puyehue, 100,000; Petrohue, 157,000; Llanquihue, 147,000; Chiloe, 100,000; total, 732,640.

CONSERVATION OF RESOURCES AND FORESTRY EDUCATION

No forest legislation has been enacted in Chile up to the present, and conservation of resources and scientific exploitation are not practiced. In 1924 there was before Congress a bill fostered by the Bureau of Forestry, Fishery, and Game which, in general terms, is designed to protect national forests against encroachments of individuals and haphazard methods of exploitation in order to insure greater production and improve cutting methods. There was little expectancy that this will be enacted into law for several years and, if enacted, unless the Government can be induced to increase the appropriation for the development of its forestry service materially, it is unlikely to be rigidly enforced.

Despite this lack of legislation, the Bureau of Forestry, Fishery, and Game has undertaken to prevent losses in Government-owned forests from forest fires by applying the law of trespass. Patrolling is so infrequent, however, and the number of men employed for this purpose so insufficient, that this object has been only partially attained.

This Chilean bureau is also making strong efforts to reforest certain areas and is constantly carrying on experimental work in areas which at present are unsuited to agricultural purposes. Through that office the Government also attempts to encourage reforestation of privately owned lands by supplying seeds and young trees free of cost or at nominal prices. To supply this demand, which has increased considerably during the past few years by reason of the promotional work of this bureau, there are maintained three nurseries, one in Vallenar, another at San Fernando, and the third at Linares, which combined produce annually close to 1,000,000 trees per year. At Chanco, in the Province of Maule, and at Llico, in the Province of Curico, there are Government stations reforesting the sandy dunes and hills in their neighborhood. The former has already reclaimed more than 250 hectares of sandy soil on which there have been planted approximately 3,000,000 trees during the past few years. Several other areas have also been reclaimed in this manner, two of the most important of which are at Freirina, near Santiago, and on the dunes back of the city of Concepción. In reforesting these lands, the Government generally uses trees that are not indigenous to Chile, but which are of rapid growth and may be used for industrial purposes.

Although there are no special forestry schools in Chile, special courses in forestry are given in the Catholic University and the Instituto Agronomico, both in Santiago. These are 4-year courses, and graduate between 40 and 50 students annually. The school of agriculture in the city of Temuco also has a special course in horticulture for the purpose of preparing students for the vocation of forest guards or rangers. The number of students graduating annually from that school seldom exceeds 15. The Instituto Agricola Bunster at Angol also teaches horticulture, but its courses are almost wholly limited to the culture of fruit trees.

VALUE OF TIMBERLANDS

Well-organized exploitation of timberlands has never yet been undertaken in Chile. The extraction of practically all of the woods has taken place in order to clear the land for agricultural purposes, and the valuation of timberlands has almost invariably been set by the adaptability of the soil to agricultural or pastoral purposes. For this reason it is extremely difficult to secure a fair idea of the selling price of lands to be used wholly for their timber content. In recent years, the Government has made sales of several parcels of land well covered with a number of different species of woods at prices ranging from 100 to 300 paper pesos (approximately $12 to $36) per hectare, according to their location, the type of soil, and proximity to railways or other means of transportation. The average price for lands within a few miles of railway transportation and covered with mixed stands of trees is considered to be approximately 250 paper pesos (now about $30) per hectare. When such lands are covered by clear stands of particularly useful industrial woods, such as rauli or lingue, prices asked are somewhat higher, at times reaching as high as 500 and 600 paper pesos ($60 and $72) per hectare. These prices, however, can not be considered as indicative of the value of the timberland, for the real purpose for which the woodlands are bought is to clear the land. There are several large tracts of land held in different parts of the country that contain clear stands of different kinds of wood and that are not adaptable to agricultural purposes. One such tract, in the Province of Cautin, in the foothills of the Andes, and located along the Government military road, contains 54,000 hectares of wooded lands, of which 14,000 hectares are clear stands of *Araucaria imbricata* (*Pinus araucana*). The price demanded for this tract was 3,000,000 paper pesos (now about $360,000, or approximately $6.60 per hectare). It might be considered that a fair valuation of clear stands of *Pinus araucana* would be $5 per hectare.

The practice of purchasing timber rights from the landowners in Chile has occurred only in a few isolated instances where special conditions made it advisable. Mills usually purchase timber after it has been cut and delivered either to a river port or railway station. Several years ago, a large firm in Valparaiso believed that, with the growing scarcity of certain classes of woods, cutting rights might advantageously be sold to several of the larger saw and planing mills and entered into a contract with the Government to extract from 6,500 hectares of land in the Indian reservations in the Province of Cautin all sound trees having a diameter not less than 24 inches, for which they agreed to pay 80 centavos Chilean paper (at that time equivalent to approximately $0.10) per tree. Efforts to resell these rights were unsuccessful, however, and no further action has since been taken.

It is generally understood that the Government would not be averse to selling the timber rights on certain portions of the national reserve under conditions that would insure against the total depletion of such areas. Probably one of the conditions of such sale rights would be that a certain proportion of seed trees and young trees was to be untouched or, in the more usual terms, that the area be replanted to the same class of woods which had been extracted. The location and stands would materially influence the price at which such timber rights might be sold, but it is unlikely that, under the most favorable conditions, these would greatly exceed a price of 1 peso per tree.

None of the larger banks in the country and very few of the smaller banks are willing to make loans against forest lands. Although it is a common practice to obtain funds by mortgaging properties, the basis on which such loans are granted is the agricultural or pastoral value of the land and not its worth as forest land.

No special taxes are applied against forest lands. There is, however, an income tax of 9 per cent of income, which is fixed at 6 per cent of assessed value.

Little attention has been given to efficient cutting methods, reforestation, thinning, or improvement of stands, either in the privately owned forests or those owned by the Government. At the Government experiment stations advanced practices to eliminate waste, improve stands, and insure best growth are employed, but these have not generally been extended to Government reservations. Some of the most valuable timber of the country has been cut and, since no provisions have been made for reforesting these areas, within a comparatively few years some of the best woods may disappear except on the reserves of the Government.

TIMBER PRODUCTION

Logging operations are different from those employed in the United States. Practically all cutting operations are undertaken by the farmers for the primary purpose of eventually clearing land and devoting it to agriculture or stock raising, and as a result efficient and well thought out extraction methods are lacking. In a few isolated and unimportant instances mills own timberland and contract with crews for its exploitation, but generally they prefer to purchase cut logs or boards from the farmers after they have been delivered to a specified shipping point, thus obviating the necessity of investing in

equipment, maintaining a cutting and hauling crew, or undertaking the expense and risks of lumber operations. To this method may be attributed the large percentage of losses in cutting operations, estimated at 33 per cent, yet it proves quite acceptable to the farmer, as it enables him to utilize the services of his "inquilinos" or farm hands at a time when they would otherwise be unemployed and probably become dissatisfied. So long as this system is practiced there is little probability of great improvement in this direction, for ultimate exhaustion of his wooded lands is viewed by the agriculturist as a distinct benefit.

FELLING

Usually farmers enter into contracts with sawmills or others to sell them over a stated period so many "pulgadas" or 10 feet, board measure, in lumber of such shape and such quality as may be desired. After harvesting of farm crops has been completed the farmer selects the land he wishes cleared and, if it is virgin, directs his workmen to clear away the underbrush, piling it at stated intervals. When this is well dried it is burned. Fellers then cut all standing trees that are of proper diameter to meet the requirements of the contracted sizes, as well as those still standing which might impede the ready movement of the felled trees. Only in rare instances are trees marked before felling, and this is never practiced when lands are burned over before cutting. Firing before cutting is so wasteful—sometimes resulting in a loss of as much as 80 per cent of the sound timber—that the Government forestry bureau is constantly urging the enactment of a law imposing severe penalties against owners practicing this method and has already succeeded in inducing some of the largest producers to clear land by less destructive means. Where land is not burned over before logging operations begin, it is usually burned after logs have been hauled to the mill site, to clear it of the over-nature or dead trees, undergrowth, or other débris. The following spring this land is broadcasted for pasturing and left in that state for several years or until stumps have sufficiently rotted to permit easy removal, when it is turned under for crops.

Felling usually takes place during the rainy or winter season, from April until early September, when labor is not engaged in the usual farm duties. Invariably axes are employed for this work, but in a few instances laborers have shown a preference for crosscut saws. No attempt is made to insure low stumps; on the contrary, the feller usually cuts at the place best suited to his stature or convenience, and as a result stumps on a single area will show marked difference, in many cases ranging from 12 to 60 inches above the ground. Ax-felled trees are usually cut much closer to the ground than are those felled with saws. As each tree is felled, the limbs are removed.

LOGGING

After felling and limbing, trees are chopped or sawed to log lengths before being moved. Logs are permitted to lie where felled until hauled to mill site. Barking is seldom practiced, except when square logs of large dimensions are desired. Sizes of logs depend

entirely on contracted specifications, but where boards are contracted for logs are cut to lengths of about 13 feet. Construction timbers are often cut to 22 feet, but only in a few instances, usually with alerce or *Pinus araucana*, have logs been cut to lengths exceeding this—never longer than 30 feet. Very few mills care to cut timber longer than 6 meters (19½ feet); such lengths are usually produced by mills located near railroad station, which buy this timber from small owners who have hauled it, sometimes as far as 30 miles, on two-wheeled carts drawn by oxen. Where ties are desired, cut lengths are about 6 inches above the size mentioned in the contract to admit clean-sawed edges. Carefully prepared sawing schedules are rarely used, and there are, consequently, great losses from small ends, which run from a fraction of an inch to as much as 12 and, in some cases, 15 inches on each log. Waste ends are sometimes used as fuel or burned for charcoal, although usually these are left where cut and destroyed when land is burned over.

The same laborer that fells the trees invariably does cross-cutting to log lengths, employing for this purpose cross-cut saws of 8 to 10 feet in length. The 6-foot length saw is seldom used. No attempt is made to pile logs when cross cut.

HAULING

Hauling of the logs to the mill site, which is seldom more than a mile away from the center of cutting operations, is usually done in the dry season—that is, from October to April—immediately following cutting time, although when cutting only lingue, rauli, roble pellin, or alerce sometimes logs are left where felled for several years, depending upon the availability of labor and sales prices. When a winter season is particularly dry or the nature of the land admits free movement even during the rains, an endeavor is sometimes made to haul at the same time as felling, but generally the difficulty for draft animals to get pasturage during the winter months prevents their use during that season. A narrow 2-wheeled cart drawn by two to four oxen is the most common means of conveyance. Loads depend entirely on the size and length of logs and the nature of the trail or road. Usually three or four logs of average circumference and not over 13 feet in length are hauled at one time. Average haulage of a single cart is 100 pulgadas (1,000 feet board measure) of logs daily.

Where felling is done on the side of a mountain with a sharp incline logs are often rolled to a water bed or mountain stream and driven to low levels, where they are assembled by the drivers of carts and hauled to the mill. Hauling from the mill to railroad station or river port is done in the same manner, although the cart used has larger wheels and a larger carrying capacity.

The use of waterways as a means of conveying logs to mills is not common in Chile, as most of the producers of logs have their own sawmills located on their property, and these are moved as felling progresses. Log ponds are not to be found in Chile. Water transportation of sawn timber is utilized in a few instances south of the River Bio Bio, where navigable streams are available and delivery

point is at bank of the stream or at ports. When this occurs, timbers are made into rafts and allowed to drift with current until destination is reached, when they are brought ashore and roughly piled.

WAGES

Since the same man fells, limbs, saws into logs, and hauls to mills, he is usually paid one wage for the completed operation. While these vary in different sections of the country, in the south, where principal timbering operations are carried on, he is paid from 6 to 10 centavos ($0.007 to $0.012) per pulgada (inch, log rule; 1 pulgada log rule equals 10 feet board measure) for roble, laurel, and most common lumber, and from 8 to 20 centavos ($0.01 to $0.024) for rauli, lingue, and sometimes alerce, according to the topography of the soil, sizes of logs, and distance to mill. Since laborers are almost wholly recruited from among the "inquilinos" on the property, they usually supply their own food and habitations as well as draft animals and carts. Implements, however, are generally supplied by the proprietor.

UTILIZATION OF TREES

Only the most rudimentary methods of cutting, sawing, and edging are employed, and the waste is enormous, it being estimated that for every three boards cut one is lost. Little attention is given to low stumps, no attempt is made to work out a scientific cutting schedule, and the waste is seldom wholly consumed as fuel for the mill or converted into charcoal. While there are no means available for ascertaining the quantity of charcoal produced annually, it is so small as to be almost negligible. Usually owners who are cutting close to the railroad will make some attempt to produce charcoal, but where it is necessary to haul it several miles to a shipping point this seldom takes place. The process employed in making charcoal at these points is the same as employed thousands of years ago; waste material is piled in stacks to a height of 7 or 8 feet and covered with earth in which air holes are punched, and a fire lighted and permitted to burn until the wood has been charred. The percentage of charcoal recovered by this method is often so small as to make it unprofitable to be moved.

Although many of the small coastwise steamers and a few of the small locomotives usually burn wood, only in certain sections of the south, where wood is plentiful and can be secured from near-by forests, is firewood used to any great extent.

LUMBER MANUFACTURE

The manufacture of lumber in Chile is one of the oldest industries in the country, but only in recent years has it attained a place of real importance. The wealth of native woods found by the early colonists was immediately placed to good use in the construction of rude habitations and furniture, yet for many years the country depended upon foreign sources for certain types of construction lumber and practically all of the better classes of manufactured

products. Until 25 or 30 years ago many woods since found to be adaptable for a wide range of manufactured articles were little used and no attempts made to exploit them. Even at present certain species have not been employed to the extent which later needs will develop. For example, *Pinus araucana*, a wood found in abundance in the southern and central zones, has only recently been used for the purpose of flooring, although it is well suited for this class of work; rauli and lingue, formerly used for certain classes of cheap furniture, have only within the past few years succeeded in taking the place of imported woods in the manufacture of well turned out office furniture.

While the methods of lumber manufacture can not be compared with those employed at present in the United States and some of the European countries, there has been a notable betterment during the past 15 or 20 years. Many of the smaller finishing mills have gradually been forced to close up or improve their methods of lumber manufacture. However, there is ample room for expansion, since the industry is still unorganized and wholly dependent upon the small producers for raw products. Practically all of these mills employ obsolete or antiquated machinery, and none of them are so dependent upon the returns from the timber business as to force them to use more modern and economical devices. As the timber of these producers disappears—which can not be avoided if present methods are continued—and as the larger finishing plants find greater need for producing their supply of raw materials, the sawmill industry may undergo a transformation and the small mill be succeeded by larger units, or the larger mills will find it necessary to eliminate the present waste and employ efficient means for extracting timber.

The expansion during the last few years might be attributed to three main factors: (1) The increasing cost to the consumer of foreign lumber or products, not wholly caused by increased production costs in foreign countries; (2) the increased protection granted to the local manufacturing industry by several increases in the tariffs on manufactured products; and (3) the greater appreciation of the adaptability of Chilean woods to certain types of manufacture not heretofore employed.

SAWMILL INDUSTRY

The sawmill industry in Chile is still at an early stage of development as compared with that in many other countries having such a wealth of valuable timberland. There are no large central mills to which logs are brought for sawing. Generally, the proprietors of timberlands have small mills on their land to which logs are hauled and cut to boards or construction timbers which are then resold to reworking mills, such as planing mills, box factories, or other finishing factories.

The number of sawmills in the country is undetermined, but upward of 90 per cent of them are in the Provinces south of Nuble. In all records compiled by the Government the word "aserraderos" is used to denote sawmills, planing mills, and reworking mills, which prevents the use of their figures as a true index of the number of

sawmills in the country. There are 708 "aserraderos" between the Province of Nuble and Magallanes, of which 699 are operated by steam and 9 by water power, according to the Bureau of Forests, Fishery, and Game. The total capacity of these mills is estimated to be 646,380,000 board feet a year, although the average annual output seldom exceeds one-half of this figure. The total number of permanent employees in these mills is estimated to be 9,903 men. This figure, however, is usually exceeded by the employment of temporary help as occasion arises.

Practically all of these sawmills are of the portable type and are moved from place to place as felling proceeds, seldom working at a distance of more than a mile from the scene of cutting operations. Generally a temporary shed is constructed to house the saws and sometimes the engines, but often work is carried on in the open. These mills are usually worked by a portable wood-burning steam engine, which uses waste as fuel and generates from 10 to 16 horsepower. English-made engines are the most commonly used, although a few American engines are sometimes employed.

The equipment of the sawmill is small, usually composed of a main circular saw of 48 to 52 inches in diameter and a top saw of from 36 to 48 inches in diameter, both mounted on a wooden frame, and a carriage, sufficiently large to take logs up to 5 feet in diameter and 12 feet long, operated by means of pinion and rack, usually having three squares or knees. For cutting long timber, such as roble, *Pinus araucana*, or alerce, a double carriage is generally used, having as many as five squares or knees, which will take logs up to 20 or 22 feet. Completing the outfit is a small circular saw and a locally made wooden table moved by hand, which is used for edging such lumber as has not been squared by the main saw.

A wide variety of different saws is employed in this industry in Chile, including American, Canadian, German, British, French, and a very few Swedish makes. In recent years several local firms have manufactured benches for saws, introducing certain modifications of detail to meet the requirements of native woods and sizes and the customs of local labor. Saws employed in these benches are circular No. 7 or No. 8 for use in cutting rauli, lingue, laurel, and other classes of softer woods, and No. 6 for roble, pellin, alerce, and other hardwoods. Most of these saws have fixed teeth, but introduction of insert teeth has met with some success. Gang saws and automatic conveyor feeders are never used, and their introduction would be extremely difficult under existing methods of operation, in view of short time the mills work.

A mill as above described will produce an average of 8,000 board feet of lumber a day, operating from sunup to sundown. Most mills run only from April until October—that is, during the winter months—when hours are from 6 a. m. until 7 p. m., with stops of one-half hour at 8 a. m., one hour at mid-day, and one-half hour at 4 p. m. Only a few mills operate during the entire year. The crew of such a mill consists of 12 or 13 men.

Where the owner of timberland uses his own crew, he generally supplies them with food and pays the sawyer from 8 pesos ($0.96) to 10 pesos ($1.20) per day and the rest of the crew 5 to 6 pesos ($0.60 to $0.72) per day. Many mills are now cutting on contract,

the owner of the land supplying the mill and the head mechanic contracting to saw the timber into boards for 10 to 20 centavos per pulgada.

COST OF PRODUCTION

Accurate cost sheets are never worked out by owners or mill contractors. Generally a rough estimate of costs is made and a further percentage added to cover unexpected contingencies. Depreciation of machinery is never taken into consideration, although some allowance is usually made for repairs or renewal of saws. According to figures of one mill which has endeavored to estimate costs accurately, the cost of felling, cutting to log lengths, limbing, road building, and hauling of such woods as laurel, lingue, rauli, ulmo, and roble approximates 30 centavos per pulgada. Only three mills have thus far cut *Pinus araucana*, and these estimate their costs at the same figure. Cost of sawing, including depreciation of machinery and necessary repairs, labor, lubricants, and piling, is estimated at from 20 to 30 centavos ($0.024 to $0.036) per pulgada.

Adding to these figures cost of hauling from mill to railway station, which, while dependent upon distance and topography, will generally average about 40 centavos per pulgado ($0.048 per 10 board feet), would give a total cost of approximately $12 per $1,000 feet placed at the railway station. However, this figure fails to include original cost of timberland and depreciation of machinery, nor does it provide for possible income derived from other products, such as sale of logs unsuitable for boards, as fence posts or charcoal. Generally, however, these are complete losses, since distances from market and hauling costs are so great as to make it uneconomical to market them.

SELLING PRICES

The selling prices at railway station or other point of delivery are not uniform throughout the producing regions, but depend largely upon the distance from consumption centers and the demands of the moment. If a producer is particularly anxious to clear land, he often considers a price sufficient to cover the cost of clearing is acceptable, even though such an offer may be below the prices being obtained by other near-by producers.

For the purpose of comparison between cost and selling prices the mill above mentioned, which is devoting itself almost entirely to the production of boards from rauli, lingue, coigue, and laurel, received in 1925 the following prices:

	Pesos
Rauli, lingue, and coigue: Mixed firsts and seconds, in boards 1 by 10 inches by 4½ varas (12 feet 4 inches)—	
Sixty per cent firsts and 40 per cent seconds	2.40
Thirds	1.00
Laurel: Mixed firsts and seconds, in boards 1 inch by 10 inches by 4½ varas (12 feet 4 inches)—	
Sixty per cent firsts and 40 per cent seconds	1.40
Thirds	.70

Sales are invariably based on "corrientes" or a mixture of firsts and seconds, usually running 60 to 65 per cent firsts and the remainder seconds. Thirds, however, are always classed separately. All are based on the pulgadas contained in a given board. Lengths shorter than 12 feet 4 inches are seldom purchased and are usually burned on the spot, especially if hauling distances are long. The fact that third grades of boards or construction timbers pay only half or less than half the price of firsts and seconds causes many producers located at distances beyond 5 or 6 miles from the railway station to reduce these to firsts wherever possible by reducing widths, thus increasing their value and avoiding the charges of hauling the lower grades.

Prices of long-length timber and railway ties are generally subject to special contracts. The State Railways recently placed a large order for ties of roble pellin, delivered at railway stations in the Province of Llanquihue at an average rate of 5 paper pesos per meter—that is, 12 by 12 by 39½ inches—for firsts and 3.50 pesos for seconds.

SIZES

No sawing schedules are drawn up to secure the greatest utilization of logs. Selection of logs is followed only so far as different types of lumber are involved.

The standard of sizes is limited to construction timber and boards. Roble, ulmo, and coigue are usually cut up into construction timber of approximately 12-foot, 15-foot, 18-foot, and 20-foot lengths. In a few instances, where mills are located near a railway station, they are sometimes also cut to lengths of 22 feet and, at rare intervals on special requirements, as long as 30 feet. As a rule, long lengths are supplied to mills located near a railway station by small owners who hew and transport them distances of 25 or 30 miles, selling them in running meters on the basis of squares of 12 by 12 by 12 inches for any price they can get. Current thickness and width of construction timbers are 2 by 4 inches, 3 by 5 inches, 4 by 6 inches, and 4 by 8 inches. On special orders these sizes will sometimes vary, but generally they may be considered standard timber specifications. *Pinus araucana* and alerce are also cut in these sizes, although the former is often cut to board sizes. All other lumber is cut to board sizes, which are generally 12 feet 4 inches long (4½ varas), 1½, 1, 2, and 3 inches thick, by 5, 6, 8, and 10 inches wide.

GRADING

Since almost all of the timber cut in Chile is virgin, grading standards are still very high, although detailed specifications clearly defining the different classifications are not uniform in application, nor have they been published. When sawmills contract to furnish lumber, the buyer usually reserves the right of inspection and rejection at railway or river shipping point. Such contracts are usually based on approximate percentages of different grades, with allowances for reasonable increases or decreases. Inspectors for purchasers classify the lumber submitted and, if such classification is not acceptable to seller, disputed qualities are summarily rejected and the seller has no further recourse except in law. Sellers seldom seek relief in courts, generally accepting the decision of such inspectors or disposing of their timber to other purchasers. Since all lumber is generally cut in readily marketable sizes, sellers are usually able to dispose of their product elsewhere, even though at a small loss.

Grading is roughly classified as follows: Railway ties, into firsts and seconds; construction timbers, into firsts, seconds, and thirds; and boards, into firsts, seconds, thirds, and, rarely, fourths.

First grades of construction timber are free from large knots and admit a small number of sound knots not over ¾ inch in diameter and a reasonable number of pin knots. Second grades admit a larger number of sound knots, generally not exceeding 1½ inches in diameter. Small windshakes are allowed in this grade, and one edge with a small wane is permitted.

Third grade is considered a cull grade, and anything which does not enter into the other two grades is given this classification, provided the wood is suitable for some use. Generally, third grades are used for temporary purposes, and even twisted or warped timbers are acceptable.

First grades of boards must be those boards free of defect, either of constitution or elaboration, and all must be square-edged. In some woods only the heart is considered as first grade, but slight discoloration—the extent depends upon uses—is permissible. Second grades are boards having several small knots, usually not exceeding three or four to a board 1 inch by 10 inches by 12 feet, and so located as to permit the saving of at least 60 per cent of the board free from knots. Discoloration is permissible. Thirds are boards having more small knots than seconds or a few larger knots, with small windshakes, or with not exceeding two or three knot holes at cut edges. Fourths are the culls, and any board of an inferior grade, which is still serviceable, is classified as fourth grade. Usually, however, reworking mills will not accept below third grades, and even more often sawmills find the cost of transporting to delivery point makes it uneconomical to endeavor to dispose of this grade.

PLANING MILLS AND OTHER FINISHING MILLS

The development of the planing-mill industry, sash and door mills, box factories, and furniture factories has only within recent years shown indications of emerging from the stage of undercapitalized, inefficiently managed, individually owned concerns to one attracting outside capital and encouraging the formation of fair-sized companies.

Until 15 years ago there were no large planing mills, box factories, or furniture mills in the country, and at present there are only two large companies devoting themselves to the production of planed products, sashes and doors, and box shooks, and no large-scale furniture factories.

There are no figures available of the amount of lumber planed by all mills throughout the country, but it is doubtful whether this exceeds 170,000,000 board feet annually, of which at least 70 per cent is produced by the two large mills mentioned. The remainder is supplied by several small mills located at different cities in the lumber zone and by the large number of yards existing in all towns south of the Provinces of Valparaiso and Santiago, which supply the small carpenter shops and furniture factories with semifinished products. These are usually equipped only with a planer, although some of them have a combined matcher and planer and a band saw.

Rarely are they equipped with more than one or two machines nor do they attempt to supply from their own machines special sizes of boards or scantlings. These are usually purchased from the larger planing mills.

Both of the large planing mills mentioned are operated in connection with sash and door and box-shook factories, and both produce practically all of the moldings and a large part of the broom handles consumed within the country. The fact that the market for their products is limited to the relatively small demand of a country with a population of less than 4,000,000 inhabitants, where houses are generally constructed of brick or adobe, makes it of great advantage for these mills to be able to change from the production of one class of products to that of another as occasion warrants.

All of the stock used in the planing mills throughout the country is the rough boards or current sizes of construction lumber supplied by the sawmills, as none of them are equipped with small sawmills to cut rough timber into boards or scantlings.

SEASONING

One of the most common complaints against Chilean woods is that they are easily affected by climatic changes, which is attributed to inadequate seasoning methods.

Practically all lumber is air-dried. The yards of most mills provide ample space for drying all the lumber they are in position to require, and the simplicity of this method, coupled with the fact that many banks provide special facilities for credits against such stocks, makes it appeal to most mills. Although kiln drying was introduced into Chile about 15 years ago, despite the comparatively low cost of operating such kilns in view of the sufficiency of fuel from waste products, it has not generally found favor, owing to the belief that it is not entirely suitable for economically drying all species of woods. So far as can be ascertained, there are only two mills at present equipped with kilns, and these are operated in connection with box and sash and door factories. One of these mills, which is the largest and most modern in Chile, has found this process so satisfactory that it is now building another kiln of increased capacity, and the other, which has been using a converted shed for this purpose, is now building modern kilns at two of its planing mills.

The capacity of the existing modern dry kiln is approximately 1,000,000 board feet per month, and of the converted shed about 100,000 feet per month. When the new units are finished, the total production will average approximately 2,500,000 board feet per month.

The length of time lumber is air dried depends upon the class of wood and the purpose for which it is to be used. No attempt is made to dry at sawmills as green lumber is shipped to reworking mills immediately after being cut. Generally, these latter permit boards to dry for a period of six months, although when sold for furniture manufacture they are dried for 30 to 60 days longer. Some of the woods containing a high percentage of moisture require as much as a year to be dried sufficiently to permit their proper use.

Construction timbers containing not over 30 per cent of moisture and boards containing not over 20 per cent moisture are considered properly air dried for ordinary purposes, but when kiln dried for planing contain 12 per cent and for sashes and doors not exceeding 8 per cent.

Wood which is to be air dried is piled in stacks of sizes 18 or 20 feet in height and of single-board length. Some of the larger mills exercise a certain amount of care in regulating piling methods, but many other mills give scant attention to uniformity of piles or devising means by which they may be best protected from the action of the elements. At the most modern mills boards are often piled on a base which consists of several short timbers, thus being raised from the ground for the purpose of allowing an air space of from 15 to 25 inches. Care is taken to keep this space free from débris or any matter which might prevent free circulation of air or cause bottom boards to rot. Piles are roofed by raising one end of the top boards to an angle of 25° or 30°, and sometimes these boards are nailed at the elevated end to insure their remaining in place. This roof is usually of single boards, but in some instances two overlapping tiers are employed. The sides of piles are rarely protected, as it is considered that the expense of such additional labor and the weatherboarding required would not be justified by the resultant saving.

Boards are piled with stickers (edge piling is never encountered), and an air space of from 1 to 2 inches is allowed between boards. Usually boards of one size are piled together. Some mills are now using stickers of greater thickness and in other instances three or four stickers at intervals to insure greater air circulation. Height of piles depends upon the space available, and the practice of the individual mill. It is not uncommon to find piles of 15 or 18 feet flanked by piles of 8 to 10 feet on one side and 12 or 14 feet on the other. Piles seldom exceed 18 feet, and more often they are 12 or 14 feet, as these are considered the highest that can be conveniently handled. In many of the smaller mills piles are usually square, 13 by 13 feet, the current length of boards, but two of the largest mills often erect piles 25 feet long by 13 feet wide by 18 feet high.

Few yards are equipped with rails for handling lumber, and none with cranes or other mechanical devices for piling, and, with the present low scale of wages to pilers, it is doubtful whether investment in such devices would prove economical.

The percentage of discoloration of air-dried stock is difficult to ascertain. Many woods are of several distinct shades of a similar color, depending upon the age of the tree, and this is often confused with discoloration. This does not materially decrease the value of lumber used for construction purposes, although for finer grades of furniture it is not acceptable.

PERU

Assistant Commercial Attaché Julian D. Smith, Lima

Peru affords a steady, dependable, and fairly important market for American lumber, which for a number of years has enjoyed a virtual monopoly of this trade. The United States now supplies practically all of Peru's requirements in the lumber line, except for

Central American cedars and hardwoods and relatively minor shipments of certain woods brought in from Chile, Ecuador, and a few other countries. Relatively few South American countries present so satisfactory a situation from the standpoint of the American lumber exporter as does Peru. Although Peru possesses extensive timber resources of its own, lack of transportation facilities and consequent excessive costs of exploitation limit domestic production to insignificant proportions. While there is much discussion of Peru's potential resources and steps are now being taken to develop certain properties, it is not probable that any serious competition will be offered to foreign lumber from domestic sources for a number of years to come unless foreign capital can be interested on a large scale.

The principal species of wood imported into Peru are Douglas fir, California redwood, southern pine, oak, and white, western, and sugar pine from the United States, and cedar and hardwoods from Central and South America. About 90 per cent of all lumber imports come from the United States.

Lumber is imported almost exclusively by importer-distributors, who act as middlemen only and do not carry stocks, but confine their sales to the larger lumber dealers, who carry on a combined wholesale and retail business. Such dealers usually maintain a planing mill in connection with their yards. These importers do not work on a commission basis, but buy outright from exporters, and quote direct prices to the wholesalers, in which their profit is included.

Such houses are not really lumber importers, but merely quote prices and sell to the wholesalers on a c. i. f. basis. They also aid the wholesaler in financing his orders, for otherwise the latter would probably have to keep funds in the United States or pay cash. This method is customary and seems to be favored by all parties concerned.

The principal firms handling American lumber deal chiefly in Douglas fir, although they handle other kinds of lumber when required. There is no association of lumber agents or importers in Peru.

Wholesalers seldom import directly but prefer to have the importer-distributor handle the business for them. Such wholesalers buy only for their own account and for their retail trade and do not cater to other wholesalers.

Large consumers, such as railroads, usually buy through the local wholesalers, while the mines generally purchase their lumber requirements through the home office. Direct sales to consumers are occasionally made, but this procedure, while not regarded as unethical, is contrary to the usual custom. Except in the case of very large consumers, the wholesalers are the only ones that have machinery for sawing lumber into special dimension stock.

Government requirements are usually handled through the larger importers. It is not advisable for American exporters to attempt to handle this class of business direct, as it is necessary to be on the ground in order to judge whether the business is safe and desirable. The terms of sale are occasionally cash against documents, but usually c. i. f. Callao or other port, the time averaging about 90 days sight.

Practically the same procedure is observed in handling lumber from other sources, although the system is not so well organized and

the terms are likely to be more rigid. Lumber from Chile, Ecuador, and Colombia is usually sold f. o. b. port for cash or part cash, the remainder on short terms. Sales of this kind are likely to be direct importations by local dealers, although they are occasionally handled by certain commission houses. Lumber from Central America is handled in practically the same way as American products.

[Additional information on the Peruvian market for lumber will be found in Special Agents Series No. 117, Lumber Markets of the West and North Coasts of South America (1916, 25 cents), and Trade Information Bulletin No. 539, Peru as a Lumber Market (1928, 10 cents), both issued by the Bureau of Foreign and Domestic Commerce.]

IMPORTS OF LUMBER AND WOOD PRODUCTS INTO PERU IN 1927

Dressed or worked lumber—Douglas fir, laurel, larch, white pine, southern pine, yellow pine, redwood:		
Countries of origin—		
United States	square meters	66,776
Belgium	do	19
Bolivia	do	10
Total	do	66,805
Ports of entry—		
Callao	do	5,948
Chimbote	do	1,253
Mollendo	do	4,196
Pacasmayo	do	1,106
Paita	do	4,714
Pimentel	do	8,719
Pisco	do	6,195
Puno	do	10
Salaverry	do	11,887
Talara	do	22,777
Cabinet woods—oak, ash, walnut, beach; lumber:		
Countries of origin—		
United States	do	23,809
Costa Rica	do	2,994
Germany	do	2,602
Chile	do	2,443
Japan	do	856
Bolivia	do	119
Great Britain	do	30
Other	do	685
Total	do	33,538
Ports of entry—		
Callao	do	17,511
Mollendo	do	2,916
Paita	do	2,071
Pimentel	do	409
Pisco	do	1,795
Salaverry	do	604
Talara	do	8,113
Puno	do	119
Railway ties:		
Countries of origin—		
United States	number	1,137,109
Chile	do	340,728
Germany	do	5,253
Total	do	1,483,090

Railway ties—Continued.		
Ports of entry—		
Callao	number	1,258,691
Chimbote	do	45,000
Mollendo	do	60,029
Pacasmayo	do	6,000
Paita	do	8,000
Pimentel	do	1,997
Pisco	do	4,795
Salaverry	do	54,673
Talara	do	43,905
Veneers:		
Country of origin—		
United States	gross kilos	20,164
Port of entry—		
Callao	do	20,164
Ready-cut houses, and parts which constitute them:		
Country of origin—		
United States	do	341,664
Port of entry—		
Talara	do	341,664
Molding of all kinds:		
Countries of origin—		
Italy	do	48,625
Germany	do	25,752
United States	do	7,309
Belgium	do	997
Chile	do	581
France	do	299
Bolivia	do	226
Total	do	83,789
Ports of entry—		
Callao	do	67,069
Mollendo	do	8,435
Paita	do	1,507
Pimentel	do	867
Pisco	do	1,129
Puno	do	2,036
Talara	do	2,520
Dimension stock:		
Countries of origin—		
United States	do	72,187
Great Britain	do	9,261
Germany	do	5,101
Total	do	86,549
Ports of entry—		
Callao	do	63,321
Mollendo	do	13,443
Pacasmayo	do	714
Paita	do	359
Pimentel	do	2,769
Pisco	do	412
Salaverry	do	2,667
Talara	do	2,864

Construction woods, in the log, all kinds:		
Countries of origin—		
Costa Rica	gross kilos	2,089,332
United States	do	1,770,044
Nicaragua	do	230,950
Panama	do	205,122
Norway	do	96,500
Chile	do	6,119
Hong Kong	do	1,127
Total	do	4,399,194
Ports of entry—		
Callao	do	2,754,704
Talara	do	1,644,490
Sawn lumber—Douglas fir, laurel, larch, etc.:		
Countries of origin—		
United States	square meters	8,037,830
Germany	do	19,943
Chile	do	13,900
Australia	do	1,500
Argentina	do	1,160
Other	do	476
Total	do	8,074,809
Ports of entry—		
Callao	do	6,135,640
Chimbote	do	37,782
Mollendo	do	260,030
Pasasmayo	do	21,159
Paita	do	172,364
Pimentel	do	253,428
Pisco	do	163,420
Puno	do	46
Salaverry	do	149,137
Talara	do	881,803
Sawn lumber—white pine, southern pine, yellow pine, redwood:		
Countries of origin—		
United States	square meters	95,134
Chile	do	10,313
Total	do	105,447
Ports of entry—		
Callao	do	85,668
Mollendo	do	9,302
Pacasmayo	do	1,012
Paita	do	1,456
Pimentel	do	756
Pisco	do	3,041
Salaverry	do	2,098
Talara	do	2,094

IMPORTS OF LUMBER INTO PERU, 1924–1927

Class	1924		1925		1926		1927	
	Quantity	Value	Quantity	Value	Quantity	Value	Quantity	Value
Cooperage (kilos)	205,300	$13,871	516,379	$55,396	221,163	$33,168	394,056	$35,365
Veneer (do)			18,108	3,180	27,327	1,283	20,164	2,041
Ties (number)	527,969	98,268	434,661	338,830	560,811	445,965	1,483,090	494,428
Logs (kilos)	1,999,036	66,671	2,777,676	68,561	3,647,183	81,379	4,396,194	129,148
Lumber, softwood:								
Rough (square meters)	7,077,606	2,152,259	5,487,335	1,485,426	7,925,071	1,899,986	8,180,256	2,090,975
Dressed (do)	136,465	78,129	68,385	33,812	142,402	76,777	66,805	40,454
Lumber, hardwood:								
Rough (kilos)	11,099	636	1,831	297	446	100	1,600	218
Dressed (do)			308	173	19	19	8	12

IMPORTS OF LUMBER INTO PERU DURING 1927 AND 1928

Class	1927		1928	
	Quantity	Value	Quantity	Value
Douglas fir and spruce (square meters)	8,074,809	$1,904,765	6,714,457	$1,509,342
Pine, white, yellow, and pitch (do)	105,447	79,803	134,817	106,455
Cabinet woods (boards), ash, oak, cedar, walnut, maple, etc. (square meters)	30,467	40,615	37,685	47,203
Railroad ties (number)	1,483,090	464,538	285,363	303,101

Source: Preliminary official figures transmitted by Consul George A. Makinson, Lima-Callao.

BOLIVIA

LA PAZ

Consul Dayle C. McDonough and Trade Commissioner Spencer B. Greene

The larger part of the lumber imported into Bolivia is Douglas fir, known there as Oregon pine. Chilean rauli (beech) probably ranks next in importance, being used for ties and furniture. There is also some California redwood and a little white oak sold, as well as small quantities of Chilean lingue for furniture making. Southern pine and American hardwoods are practically unknown. About 75 per cent of lumber imports are from the United States and 20 per cent from Chile. A great deal of the lumber imported from Chile originates in the United States and is purchased by the Bolivian importers from Chilean dealers.

Not much lumber is imported through agents acting as representatives of American exporters. There are two or three such agents in La Paz who act as exclusive agents of American exporters, but lumber is only one of many lines handled.

These agents sell to both importers and consumers. The business done by them is very small compared with the total imports, most of which are handled directly by a few large importers who handle practically all kinds of lumber and sell to wholesalers, retailers, and consumers. Commissions to agents run from 2½ to 5 per cent and are paid by the exporters.

Several of the general importers, especially the larger British firms, import lumber on behalf of local customers on a commission basis on direct orders. They buy through their London or New York houses. In cases of such direct orders, the customers in Bolivia would pay the commission. No prejudice exists against this method of doing business. There is no organization of importers, agents, or dealers.

Large consumers, including mining and railroad companies, often buy directly through their New York or London purchasing agents. Government requirements are handled through local importers or agents. It is not advisable for American exporters to solicit this class of business direct; bids should be placed through local importers.

Terms of credit to importers are generally 30 to 60 days after sight.

American lumber should apparently continue to be handled through existing channels, as it dominates the market.

Chilean lumber is the only other lumber imported in any quantities. It is handled in much the same way as American lumber. Some local importers are branches of concerns which have houses at Valparaiso, Valdivia, and Concepcion, Chile, which supply Chilean lumber.

[Additional information on the lumber market in Bolivia will be found in Special Agents Series No. 117, Lumber Markets of the West and North Coasts of South America, issued in 1916 by the Bureau of Foreign and Domestic Commerce, and selling for 25 cents.]

IMPORTS OF LUMBER INTO BOLIVIA

Year	Kilos	Value
1925	19,300,000	$415,291
1926	15,797,806	334,896
1927	19,514,018	401,797

Source: Commercial Bulletin, La Paz.

ECUADOR

The following extract is from Special Agents Series No. 117, entitled "Lumber Markets of the West and North Coasts of South America," by Roger E. Simmons, a special agent of the Department of Commerce:

To American lumbermen Ecuador is significant as the country in South America where lumber cut from United States or Canadian forests is not found among regular stocks of any of the Republic's lumber markets. An exception might be cited of small parcel consignments infrequently received by private users, mostly from North America, to answer for particular purposes to which native woods can not be made to apply. The major portion of these imports are ordered in connection with Government work for railroad use (car repairs, etc.) or for other public-service and private corporations holding by franchise rights exemption from tariff charges. The forests of Ecuador are the Republic's greatest asset.

Most of the timber woods are found in the western region. The mangle grows there in abundance; besides lumber, this tree furnishes mangrove bark for tanning. Ceibo is used for cheap lumber. Among the most valuable trees for cabinet woods are guayacan, pechiche, ebano, roble, figueron, laurel, coquito, and quiebra hachu, or quebracho (unrelated to the quebracho in Argentina). In the southern part is found, it is said, the balsamo del Peru, a resinous wood.

GUAYAQUIL

Consul Harold D. Clum

Only small occasional shipments of Douglas fir and southern pine lumber have been received in Ecuador from the United States, destined mostly for railroad or special use. Most of the country's requirements are satisfied by the production of native lumber.

The latest available detailed lumber import figures given in official publications of Ecuador for 1926 are as follows:

LUMBER IMPORTS INTO ECUADOR, 1926

Class	Country of origin	Port of entry	Kilos	Sucres[1]
Cork in sheets	Germany	Guayaquil	80	160
Worked lumber in boards	United States	do	98,198	16,189
	Peru	do	900	216
	Chile	do	202,674	15,227
Total			301,772	31,632
Lumber for parquet floors	United States	do	1,299	1,340
	Chile	do	140,960	12,744
	Denmark	do	17	25
	France	do	35	63
Total			142,311	14,172
Manufactured lumber, not specified	United States	do	408,201	40,736
	Peru	do	35	6
	Chile	do	39,755	6,952
	Great Britain	do	247	828
	Germany	do	49	34
	Netherlands	do	53	270
	France	do	402	732
	Italy	do	853	428
	Spain	do	3,570	2,918
Total entered at Guayaquil	Germany	Bahia	453,160 5	52,898 9
Total			453,165	52,907
Grand total			897,328	98,871

[1] The sucre is worth 20 cents in U. S. currency.

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